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THE SPHERE

Vol. CLXVII No. 2184 — WITH WHICH IS INCORPORATED THE GRAPHIC — NOVEMBER 29 1941

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Christmas Greetings

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Volume CLXVII No. 2184

The SPHERE, London, November 29, 1941

THE SPHERE

With which is incorporated "THE GRAPHIC"

The Empire's Illustrated Weekly

London, November 29, 1941

BRAVING ATLANTIC TEMPESTS TO BRING SUPPLIES IN CONVOY TO GREAT BRITAIN, SO THAT SHE AND HER ALLIES MAY CONTINUE TO STRIKE THE ENEMY "WHEREVER HE IS ENCOUNTERED," AS MR. CHURCHILL RECENTLY DECLARED

Bringing war supplies of all kinds to Great Britain in Convoy in wartime is no easy task at the best of times; but when gales of wind and rain, reaching almost hurricane force, descend upon the Convoy, then the Navy's task is made infinitely more difficult. But the men of the Fleet struggle on, always winning through in the end, though the roughest tempest blow. This striking storm picture was made from a warship far out in the Atlantic as she fought her way through a furious tempest, with seas reaching mountainous proportions: it shows the tremendous masses of spray thrown up by the bows of the British vessel as she ploughed through the storm guarding the valuable supplies for this country and its dependencies

Postage—Inland, 2d.; Canada and Newfoundland, 1½d.; Elsewhere Abroad, 2d.

A WAR NEWSLETTER —No. 117

1, NEW OXFORD STREET, W.C.1.

Libya—Waiting for News.

—Until the Cunninghams and Coningham cry Hold! Enough! all news from Libya must be partial news and (to those on the spot) stale news. In the ocean of sand, our land ships range in silence, and only once, perhaps, in twenty-four hours can communications from detached units be collected and collated. We at home must expect to wait and to accept two-days-old news as red-hot news. And while we waited (and wait) we were conscious of a peculiar anxiety. I was myself much struck by the Premier's first intimation of the great campaign. It was restrained, of course. But it implied his own and his military advisers' confidence in ultimate success. In a rare and curious manner, he from the first burnt his bridges of retreat. He admitted that we had prepared to the last button for five long months; that our Eighth Army were at last to meet the Germans with equality of armaments and were at last to be given the chance they fretted for, to meet and beat the Nazis in the field. Adding to the Premier's articles (stressing the importance of a victory in this great battle) those admitted implications of a major success which we can all appreciate for ourselves, we must most of us have felt that here was a challenge to Nazi power which must be carried to substantial victory, and that nothing short of that would do. We had burnt our boats and could never retire under the explanation that we had intended and brought off merely a large-scale diversion to relieve pressure on Tobruk. That loophole the Premier rejected and closed. Of the wider implications of a victory, many were of first importance, even if all, taken together, were vague and indeterminate. They comprise the effect on neutrals (Spain, Turkey); the effect on Axis partners (Italy, Japan); the effect on Axis co-operators (Vichy France, and her African colonies newly "freed" from Weygand's decent influence); the effect on the Russian front, in the possible withdrawal of land and air forces; the effect on America, still in the doldrums of industrial conflict. Some of these results, following a signal victory in Libya now, could hardly be other than tremendous, and some at least must follow such a victory. It is not surprising in the circumstances that few battles in our history have been followed at home with interest so deep and anxiety so fretting. From the hour of the Premier's announcement, hope rose high, and as, little by little, modest and restrained items of news and progress came through, that high hope suffered no sharp set-back. Yet I can think of no military campaign in modern times which was announced by authority with so clear an expectation of success. Past and future battles may have had, and may have, far more ultimate importance in the wars of which they formed, or will form, part. But few, in the circumstances stated, have begun with so many hostages handed over to the chances of war; of few can a successful issue be so vital at this juncture.

Two Fronts.

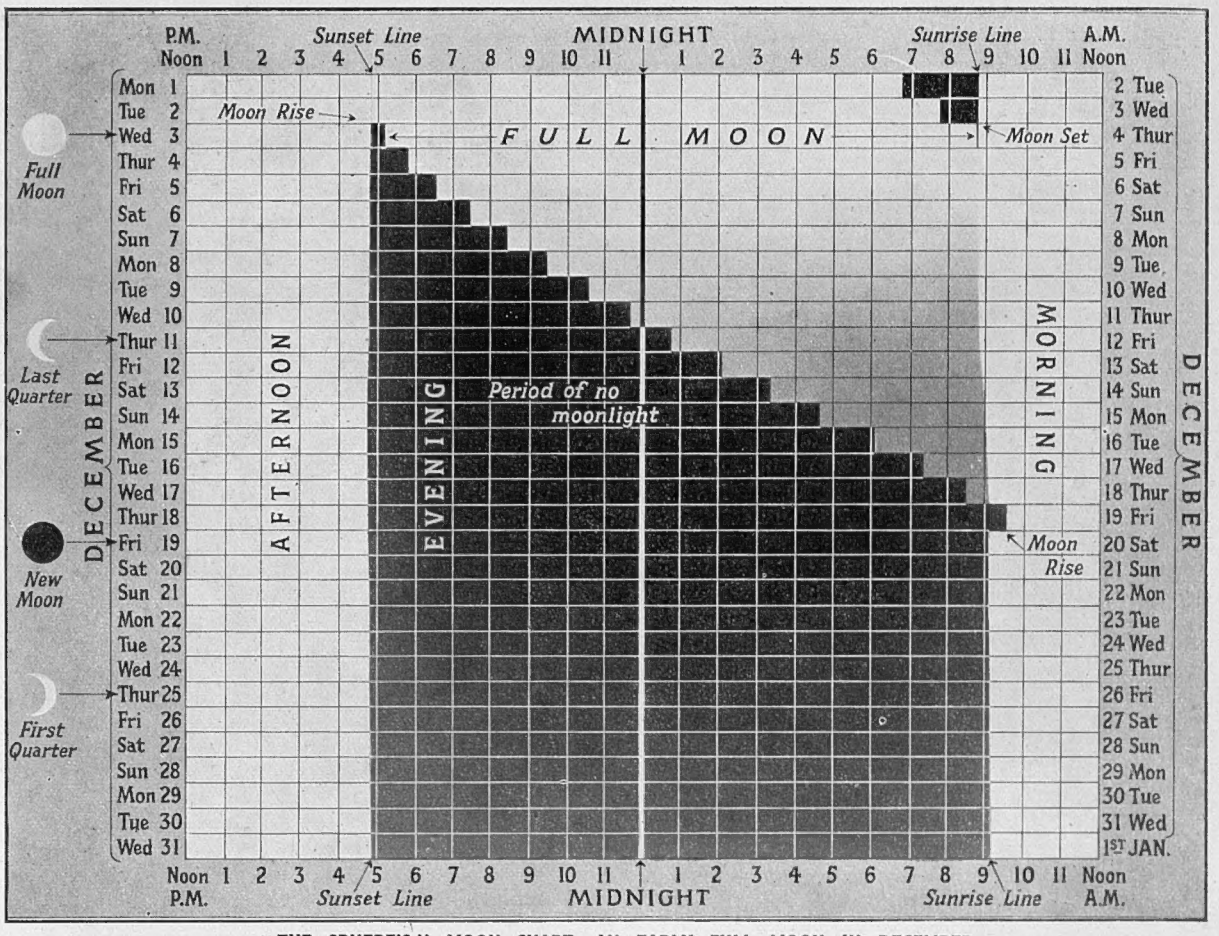
—"Approaching activity" was signalled within a matter of hours. The long-expected attack in Libya began—in heavy rain and high hope. The smashing of Naples was a clear hint of trouble to come for the Axis Libyan Army; the astonishing effect of the Navy's war on Axis supply routes to Libya no doubt advanced, and clinched, the zero hour. Good progress was made in the first stages, the penetration being south of Sidi-Omar, while Axis positions, from that place north-westward to Hell-Fire Pass, were held and penned, with the idea, no doubt, of containing them between two active fronts, Tobruk and the right flank of our advance on the south through Bir-el-Gobi. That at least was the rough idea which occurred to the arm-chair strategist when the balloon went up, but whether, if the advance proceeded, the enemy would scuttle back or face the pincers on north and south remained to be seen. It was thrilling news, and to those who have pressed for a land diversion to help the Russians the great adventure was warmly welcomed and watched with intense and anxious interest. What vast possibilities and problems the business suggests! How greatly we wish we held a watching brief in the Council Chamber of the War Lords! We must wait and hope . . . and see.

Army Changes.

—When a new idea sinks in, the Army is more than a zealot, it is a fanatic. Changes in the Higher Command of the Army come with embarrassing frequency. The Empire clearly recognises the need for youth and accepts it that fifty-five is about the limit for effective endurance of the bodily and nervous strain produced by modern war. Is it possible that the new idea has swung the pendulum back too far? What is gained on the swings of bodily health may be lost on the roundabouts of experience and continuity of planning and training. Certainly, at the bottom of the ladder, one is conscious of the constant interference in training and policy. No sooner has one got contact with one's Corps Commander and established a line of training to meet one's peculiar conditions, than the "musical chairs" start up again, the "general post" is ordered, and all, *all* is to do again. The new broom sweeps clean, and his eye falls on new and ungarnished corners. God send that the Navy does not catch the infection. The German generals seem to stick it longer under rigorous conditions. Perhaps they started younger. No doubt it is so. I am sure the idea is right. This war is no job for tired men or dug-outs.

Allies' Club, London.

—A project is afoot to establish in club premises in London large enough to accommodate persons now in England, whether civilian or military, belonging to all nations now opposed to the common enemy of mankind, an institute and club to be called the Allies'. This project seems to me to be a good one, and so it seemed to several British Premiers and statesmen. It has, moreover, the backing of several foreign Governments and of the British Association for International Understanding. I believe the American Ambassador and Plenipotentiary are strong supporters of the plan, and representatives of all Allied nations, including Russia, have already lent support to the preliminary discussions, which are being collated and knocked into shape by Mr. John Eppstein, of the B.A.I.U., at 15, Buckingham Street, Adelphi, W.C.2. The broad plan envisages an initial membership of not fewer than 2,000, an annual subscription of not less than 1 guinea, and the acquisition of a building already designed for club purposes (I believe the Royal Society's building in St. James's Street has been surveyed), which would be capable of supplying the usual needs of a club and committee rooms for discussions on international affairs, and perhaps a cinema as well. All this implies not only good will, but perhaps financial backing by foreign Governments, and also a large membership. Neither necessity appears impossible to secure. Such a club should have a life far beyond the war years. It has indeed been a long-felt want for a generation. Foreign visitors in the past have too often found "no place to go" in that line, unless they were illustrious men or Ambassadors given temporary and honorary membership of the Travellers' and suchlike clubs. The value of such a club would lie more in its educational, institutional and international co-operation facilities than in its social amenities, though both sides would have their value. I am not sure that *The Allies' Club* is a title which looks far enough ahead. I should prefer *The International Club*, or some title not clearly restricted to war conditions. I hope that some who read these lines will follow the project up by addressing Mr. Eppstein, whose telephone number is Temple Bar 4638.



"THE SPHERE'S" MOON CHART—AN EARLY FULL MOON IN DECEMBER

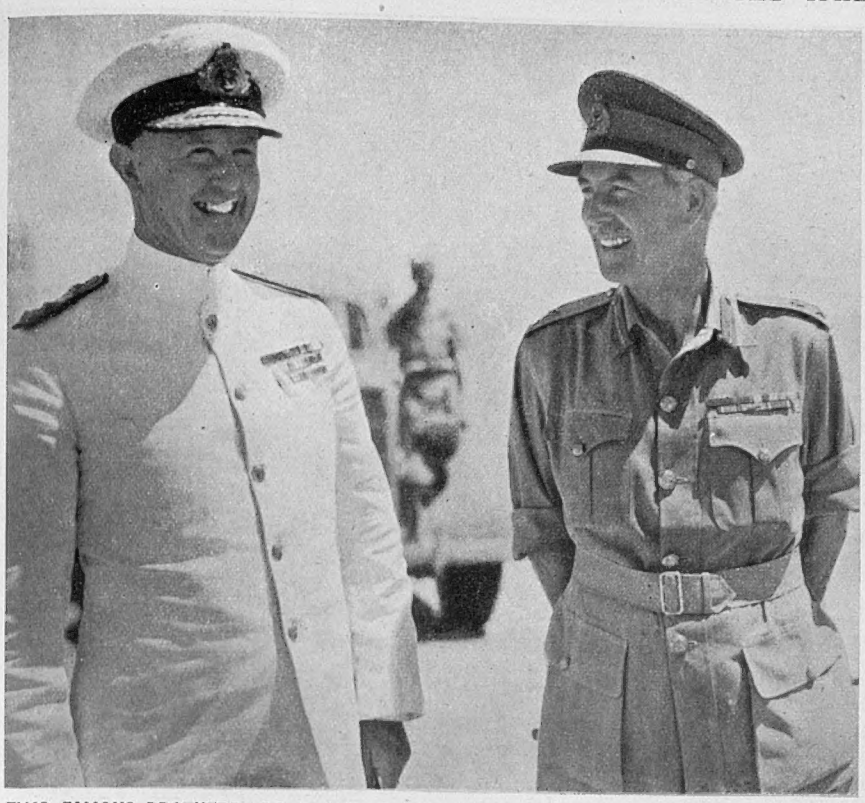
The moon reaches its peak on Wednesday, the third day of the month, rising half an hour after sunset and illuminating the sky throughout the night till it sets at sunrise. The moon-rise times then become later each night, and on the night of the 11th-12th the last quarter makes its appearance after midnight. Then comes a lengthy period of moonless nights with the new moon on the 19th. The longest night of the year, the 21st, will be one of total darkness. The rays of the first quarter will be visible on Christmas night

A limited number of these charts will be supplied free of charge on application to the Publisher, "The Sphere," Commonwealth House, 1, New Oxford Street, W.C.1, but 2½d. in stamps must be enclosed with the application

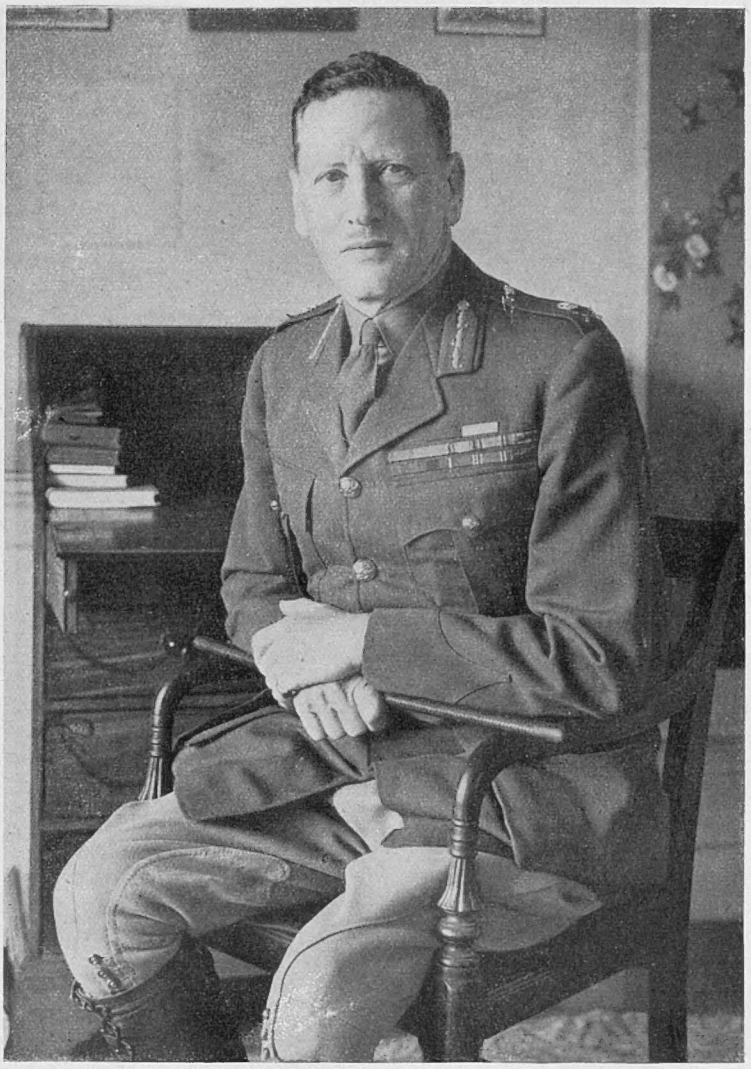
Black-out.

—*Homme propose, mais. . . .* God, or Nature, now relentlessly takes a hand in the prevailing European fashion of the black-out, and, of course, does the business far more thoroughly than mere men can. This is the blackest season of the year. True, 'flu time is ahead and the frozen pipes and skiddy roads and east winds and snowdrifts and chilblains and eternal waiting for spring. But by mid-January at least we drive on hand-in-hand with will-o'-the-wisp Hope and note a tiny proof that the days are lengthening once more. But at the end of November (quite apart from the "downs" of war) the human mind is in its eclipse of hope and consolation. Of all the crimes for which Hitler's name stinks to Heaven, the necessity to do and undo the black-out twice in twenty-four hours in a rambling house most vividly keeps his memory black in my consciousness. Just now, with Nature as a temporary Axis adherent, that necessity is even more grim. One must get up and shave in 15-watt lamplight, one must breakfast in twilight or with drawn curtains. All day long, cloud and mists make writing in any angle of any room a trial to worn-out eyes; tea is a movable feast (shall we black-out or fumble for our buns?); dead leaves choke every gutter, the tiles leak, the paths are never dry, and the mists over the land join hands with the fog of war to keep our souls in the pit. Autumn tints are lovely, and never lovelier than this year, but light is needed to reveal the artistry even of ancient tapestries. Snowdrop groups under the bare plane-trees are lovely, if cold. So, while I prefer the warmth and softness of autumn tints, I cast my vote for the cold purity of the first fruits of the spring which come attended by hope and light. Yet, even in the pit there are compensations. Nature's black-out can laugh at man's puny effort. The black evenings, nights and dawns of everlasting rain and mist, give us in fuller measure that puny security which men seek in total war—unbroken sleep and a fair confidence that the sky will rain down no death and destruction on innocent victims of the failure of civilisation, Christianity and common sense.

THE OLD STAGER



TWO FAMOUS BROTHERS—Admiral Sir Andrew Cunningham, C.-in-C., Mediterranean Fleet, and Lieut.-Gen. Sir Alan Cunningham, Commander of the newly-formed Eighth Army : The latter is fifty-five years of age, and is in command of the Libyan forces : he is the victor of the recent campaign in Abyssinia and East Africa. His elder brother, the Admiral, is fifty-eight years of age, and is the man responsible for the destruction of the enemy's Libyan convoys, and for the present sea support for the land operations



COMMANDER-IN-CHIEF IN THE MIDDLE EAST—General Sir Claude Auchinleck, aged fifty-seven, and one of Britain's leading exponents of armoured warfare. He commanded the British forces in Norway, and then went to India to succeed General Sir R. A. Cassels as Commander-in-Chief in India. He followed Sir Archibald Wavell as C.-in-C., Middle East

AIR VICE-MARSHAL A. CONINGHAM is forty-six years old. He is the Air Officer Commanding in the Western Desert and is directly responsible to Air-Marshal A. W. Tedder. He comes from New Zealand and fought in the last war, first as an infantryman and then as a fighter pilot

THE MAN IN TOBRUK : Brigadier L. J. Morshead, who has been commanding the heroic Tobruk garrison for many months past. He and his men are now collaborating with the Eighth Army, by pushing out from the sea. Brigadier Morshead is an Australian who also fought in the last war, in which he was awarded the C.M.G. and D.S.O.

The GREAT OFFENSIVE in LIBYA

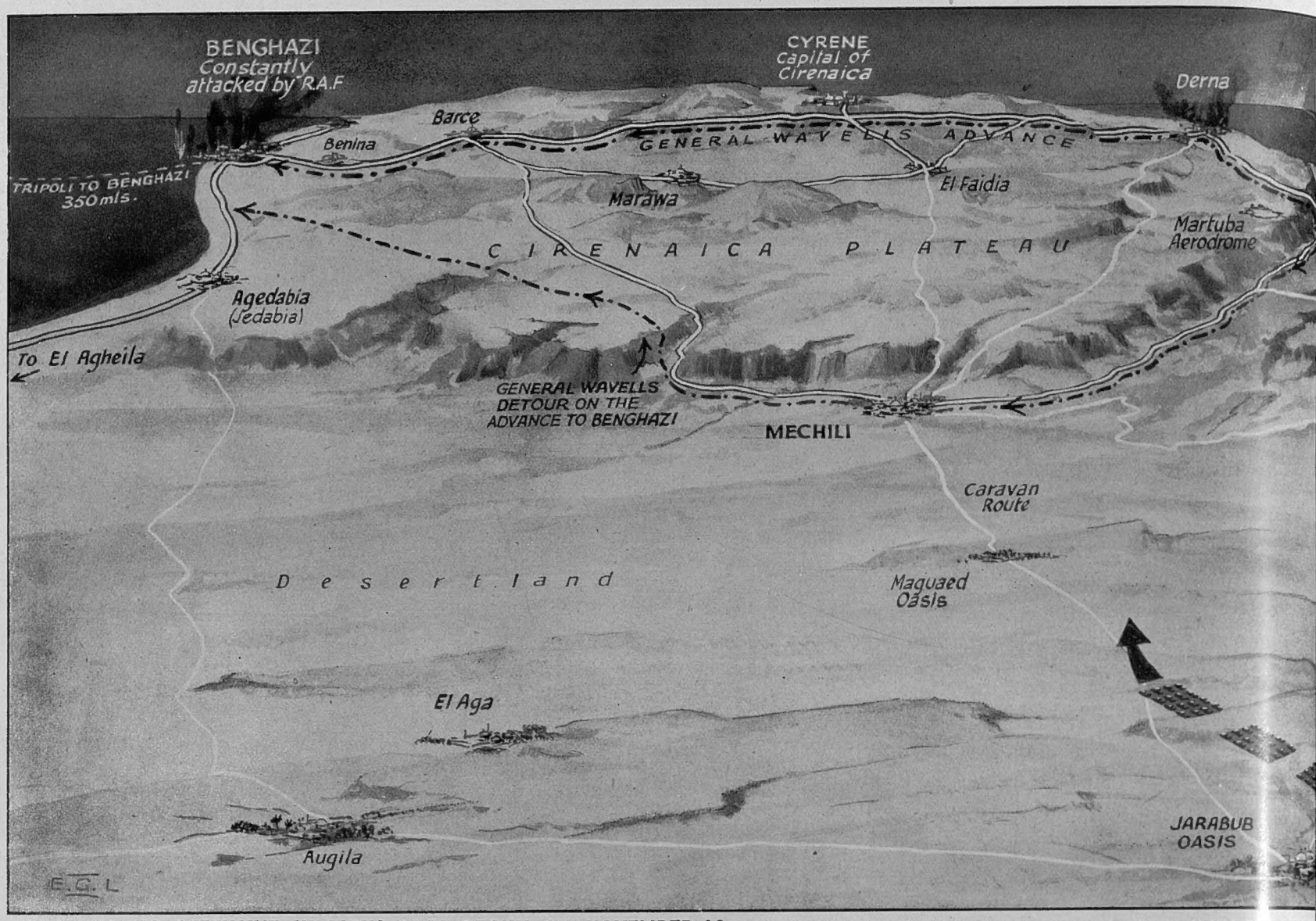
Where the British Forces have Launched a Big Push against the Combined German and Italian Armies in Cyrenaica

—Special Section, including Sphere *Diagrams and Drawings, and Portraits of the Men in Command*

THE ITALIAN COMMANDER AT TOBRUK : General Cavallero is here seen with members of the German Command : the Italian is on the left. This picture was received by *The Sphere* just a few hours before the announcement of the opening of the great offensive in the Libyan Desert

ROMMEL SAYS GOOD-BYE TO HIS FÜHRER : This picture was taken earlier this year, as General Rommel set forth to take charge of the "Invasion of Egypt"—which never came off! His famous Afrika Corps—composed of picked, "hothouse-trained" troops—has already been badly mauled by General Cunningham's Eighth Army

THE MAN WHOM NO ONE MOURNS : The Italian Commander, Marshal Graziani, fell a victim to General Wavell in the first Libyan campaign. Graziani, the "Butcher," flew back to Italy, where he resigned and went into retirement. His passing was mourned by none : during his days of power he brought the name of Italy very low in the native estimation



HOW THE BIG OFFENSIVE IN LIBYA WAS BEGUN ON NOVEMBER 18: THE OPENING STAGES OF THE BRITISH-IMPERIAL ATTACK ALONG THE WHOLE encircling movement which resulted in the penning-up of General Rommel's tanks within an area bounded by Bardia,

The SECOND CAMPAIGN in LIBYA

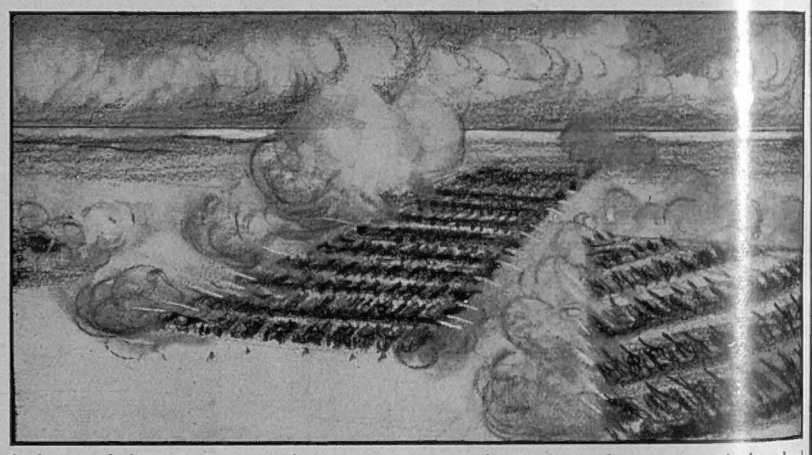
Where British-Imperial Forces are Now Ranged Against the German and Italian Enemy

—*Special* Sphere *Drawings and Diagrams*

ON November 18, British and Allied forces, after careful preparation, advanced against the Axis forces which for over six months have been a threatening factor on the Egyptian frontier. The enemy's main defensive line, the northern part of which had been heavily fortified, extended southwards from the sea through Sidi Omar towards Jarabub in a southwesterly direction. One advancing force turned this line and passed into the desert. Another column penetrated at Fort Maddalena; a main attack developed at

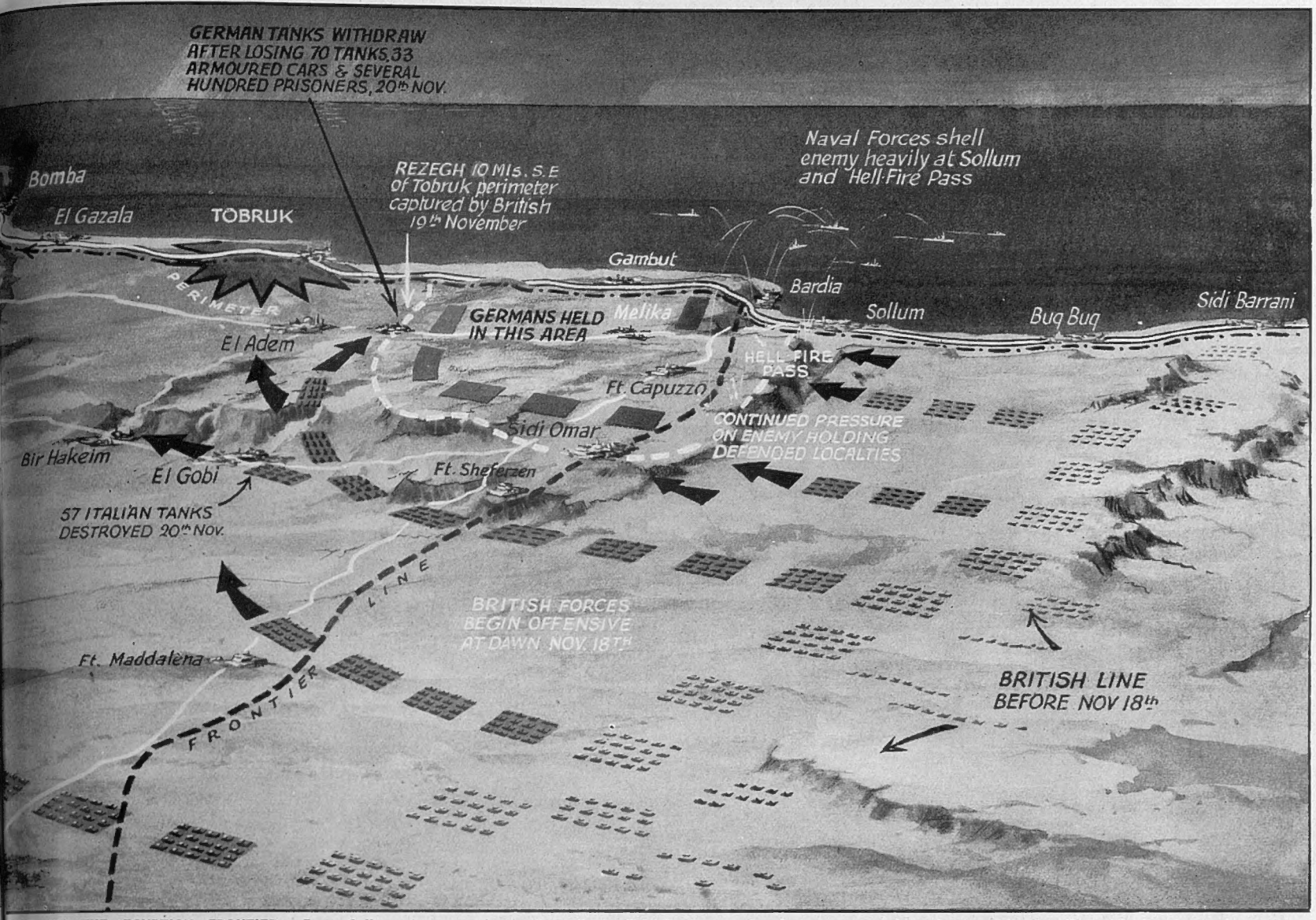
The advance of the columns of supply through the desert: The columns of vehicles bringing up supplies for the attacking forces covered the face of the desert in every direction. They advanced in parallel formations northwards, throwing up huge dust-clouds which threatened to blot out the sun

Preparing emergency aerodromes in the desert: R.A.F. technicians had gone into the desert with special staffs, searched out suitable sites, and then supplies were brought up, petrol dumped and ground crews allocated. From these drier airfields our attacking air squadrons worked brilliantly



A force of 100 German tanks was encountered at an early stage: A hundred German tanks came southwards from the Bardia-Sollum area, thundering across the gravel and sand and raising huge clouds of dust. They were met by a British force, arranged, according to one correspondent, in a triangular form. There was a fierce collision of forces in which the Germans lost a considerable number of tanks and finally retired

"Towards sunset, with the sun pouring through jet black clouds": The two tank forces pulled apart, the firing diminishing and finally dying away altogether as the two forces returned to their respective lines, neither side being able to see the other in the fast fading light

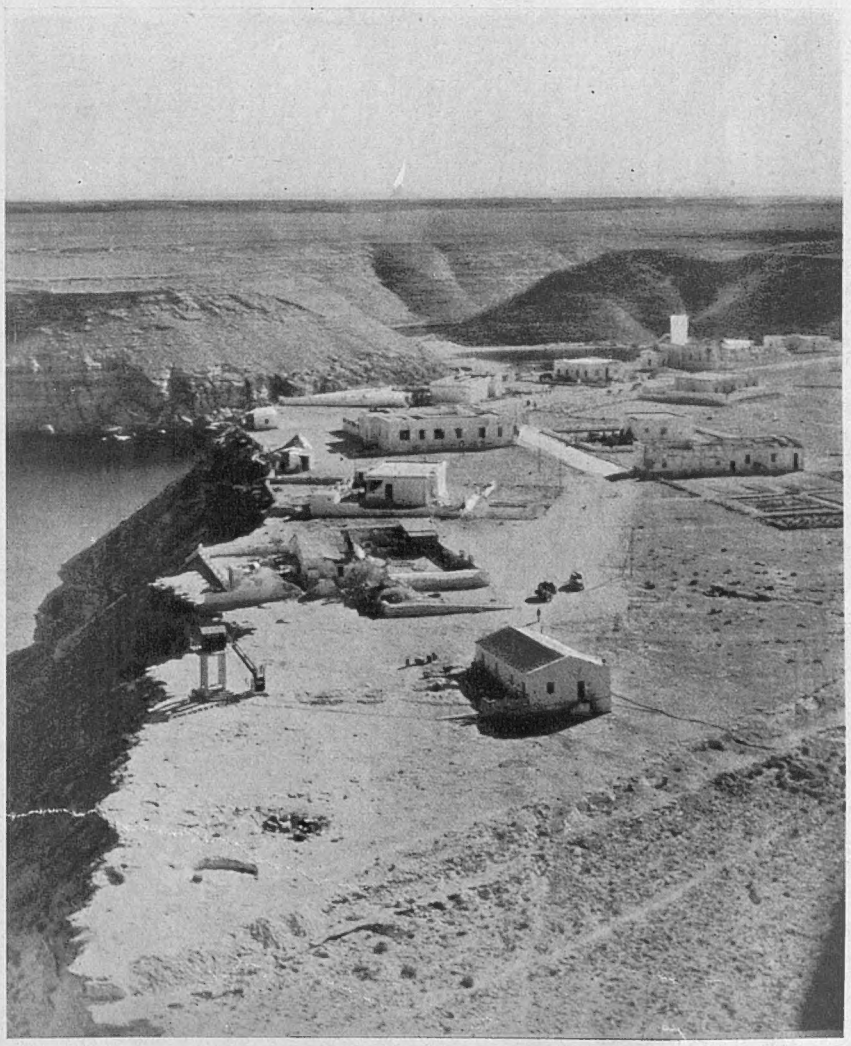


FRONT ON THE EGYPTIAN FRONTIER: From Sollum down to the Jarabub Oasis, British armoured columns swept through the defensive lines of the enemy in a great Sidi Omar, El Gobi and Tobruk. Within this region the tank battle has raged furiously—*Drawing by E. G. Lambert*

Sidi Omar and Fort Sheferzen. Once through the outer defences—the outposts all retired before superior forces—the British columns advanced in the direction of El Gobi, El Adem and Rezegh. This movement seemed to be encircling one of the main German positions, with Fort Capuzzo, now captured, and "Hellfire" Pass on the east. A main operation took place at Rezegh on November 20, when the Germans lost from sixty to seventy tanks. British forces were within 10 miles of Tobruk, from which our garrison was co-operating. The Navy continued to shell the enemy's shoreward positions night after night. By the 24th it appeared that the enemy was being isolated in these areas, his supplies being cut off from the west.

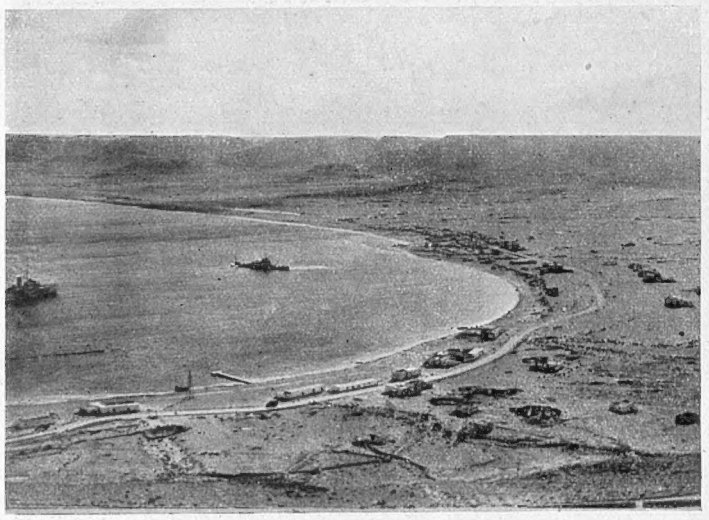
British tank forces penetrating the Italian barbed-wire fence: When our columns reached Mussolini's barbed-wire fence, they passed through neatly-cut openings; re-formed, and proceeded north-west in three columns. The fence is nearly solid with wire, but openings had been carefully prepared

A protective circle was formed at night: All unarmoured vehicles were drawn together inside a protective circle of tanks and armoured cars for the night, for the enemy was very close and Very lights were continually bursting from one camp or the other



BARDIA IS ONCE AGAIN IN OUR HANDS: This town lies to the north-west of Sollum. In the first Libyan campaign it put up a strong resistance: in the present campaign, however, it fell to the New Zealanders without a struggle. It was captured by a force operating from the south, which took Capuzzo, and then cut the only line of retreat to the westwards for Rommel's forces in Sollum. The water pipe-line between the latter town and Bardia was thereupon promptly cut. This picture was taken from the air in January 1941, just before the occupation of the deserted town by our troops

THE BRITISH IMPERIAL ADVANCE IN LIBYA



THE SWEEP OF SOLLUM BAY : Our right flank rested on the sea to the east of this spot for the sweep along the frontier line. Sollum itself was very soon cut off by the capture of Bardia, which lies to the west

THE LOWER TOWN OF BARDIA, now in our hands as the result of a brilliant lightning move by the New Zealanders. This view was taken from the heights above the town. Bardia proper is on the top of the cliffs

FORT CAPUZZO IS ALSO IN OUR HANDS : To the west of this point, General Rommel had a considerable force which retired promptly. This picture was taken during our earlier campaign in Libya : since then Capuzzo has been reduced to a heap of ruins

THE OASIS OF JARABUB, 130 miles from the coast : The southern extremity of the British line, on which our left flank rested for the great encircling movement which resulted in the trapping of General Rommel's forces

THE TANKS WHICH ACHIEVED THE INITIAL SUCCESSES : "As at sea, speed, fire-power and weight of armament are the three decisive factors. It is here that the new American tanks have shown themselves greatly superior to anything which the Germans can oppose to them. Particularly they have outpaced the Germans again and again, and their armament has stood up well to punishment"

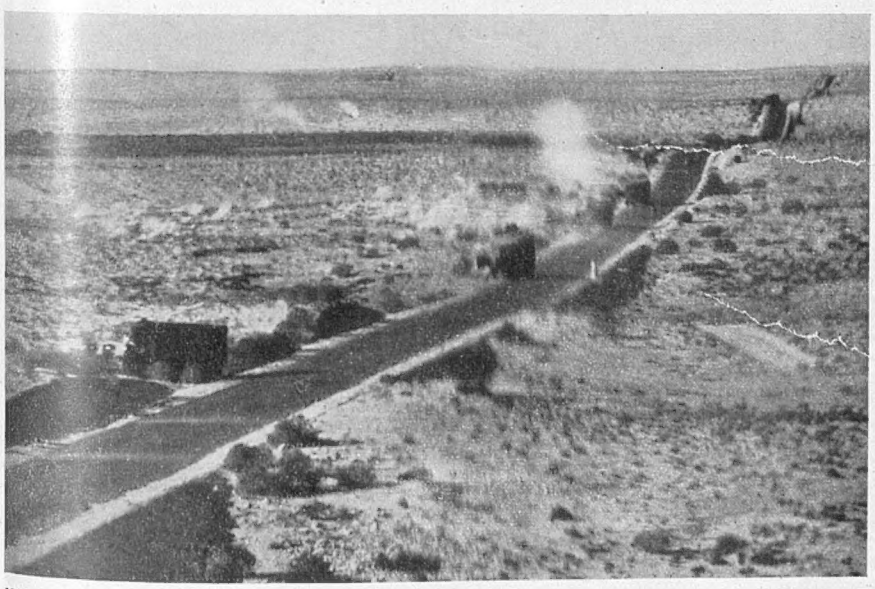
THE MEN WHO MAN THE TANKS : One of the gun crews in the Western Desert, who have moved at even greater speed than General Wavell's Army in the first Libyan campaign

THE WORK WHICH WENT ON BEFORE THE GREAT PUSH OPENED : Before the opening of the campaign on November 18, much quiet work had already been carried out. This picture shows a British military map-reading class undergoing instruction in the Western Desert. The class was taught to read maps, to take measurements and compass bearings, and other important work

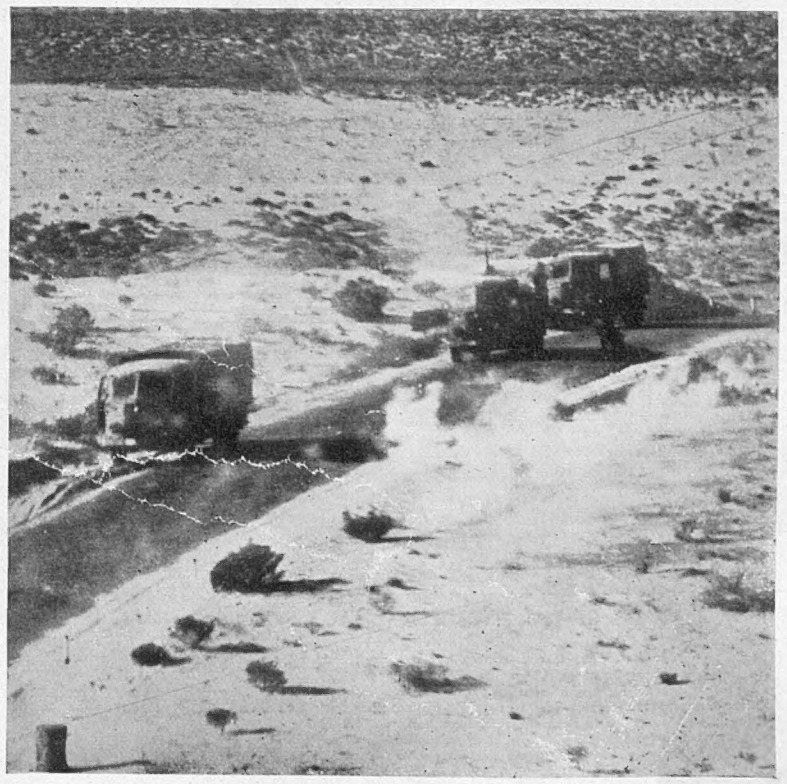
A BRITISH ARMOURED DIVISION IN ACTION OUTSIDE BARDIA : This picture was taken early in the year, when General Wavell's force was advancing through Cyrenaica. It shows what a battle of the tanks looks like when seen from the air. "At a height of 4,000 ft.", runs a recent despatch from Cairo, "it was impossible to pick out which tanks were which. The gun flashes outdid any firework display I have ever seen." In the foreground of this view are some of the Italian dug-outs in front of Bardia, with the enemy still in occupation

A BRITISH TANK MANŒUVRING AT SPEED : Our objective in the present campaign has authoritatively been stated to be the destruction of every German tank in Libya. So far, in desert encounters, the German losses have been a steady ratio of three to one !

A CAPTURED GERMAN TANK AT TOBRUK : This is the type of heavy vehicle which the enemy is using in Libya. It was captured near the forward lines at Tobruk, before the opening of the present campaign



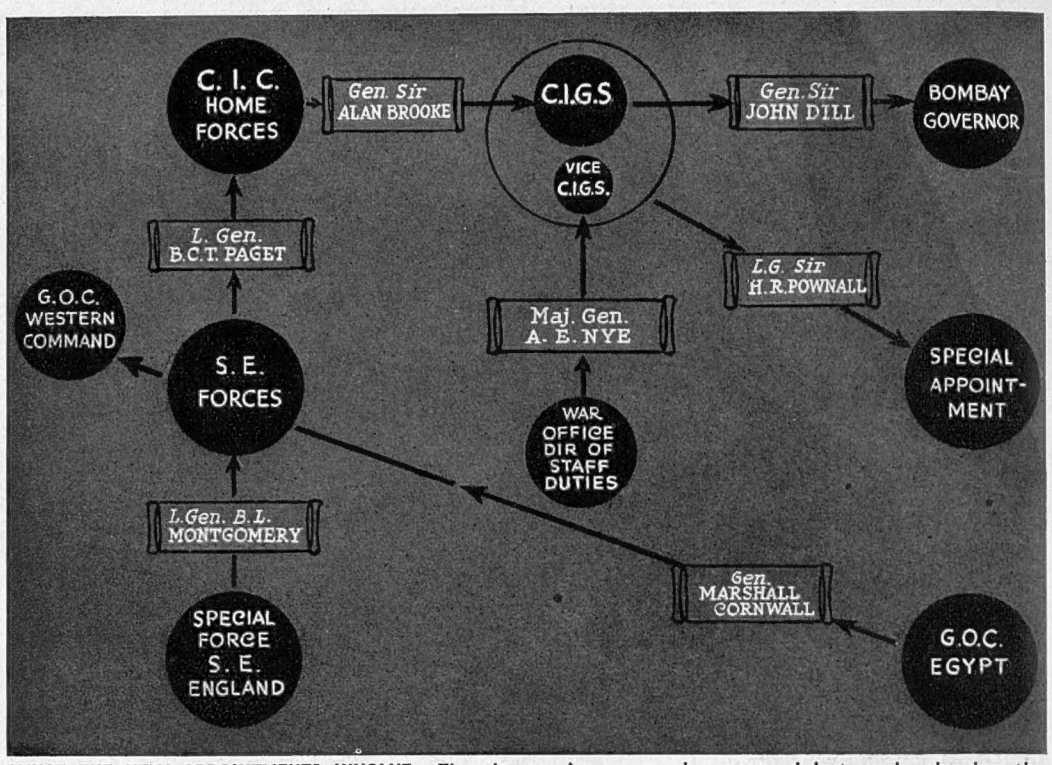
HOW THE R.A.F. HAVE HELPED TO CLEAR THE WAY : Harassing attacks on enemy transport columns were part of the daily routine carried out by the R.A.F. before the advance. These two pictures show a low-level attack on an enemy transport column on the Agheila-Agedabbia road, south of Benghazi on the Gulf of Sirte—a section of the coast road from Tripoli. In the foreground of the above picture a lorry has run off the road, and just behind another is plunging into the ditch. On the right, crews are seen sheltering from the bullets behind and beneath the vehicles



The NEW MILITARY LEADERS

The Recent Changes in the Army High Command and the General Staff

The military changes announced last week, which may have appeared to some as somewhat disconnected, take on a very different aspect when they are set out in diagrammatic fashion. What is apt to be termed a "reshuffle" now assumes a more logical aspect. The movements seen on the left, for instance, indicate a definite progress upwards: even "far-off Bombay," as applied to Field-Marshal Sir John Dill's new appointment, seems a rash phrase—because on the chess-board of this far-flung war Bombay is no longer a "far-off" place!



WHAT THE NEW APPOINTMENTS INVOLVE: The changes in command announced last week, showing the various stages in the transference of high Army officers

THE NEW CHIEF OF THE IMPERIAL GENERAL STAFF—General Sir Alan Brooke: One of the "Fighting Brookes" of county Fermanagh, Sir Alan commanded the Second Corps of the B.E.F. in France. After Dunkirk he became C.-in-C. of the Home Forces. He is a gunnery and mechanisation expert, and has a special knowledge of staff work. He is fifty-eight years of age

THE NEW GOVERNOR OF BOMBAY AND FORMER C.I.G.S.—Field-Marshal Sir John Dill: He will reach the age of sixty on December 25, and will then succeed Sir Roger Lumley as Governor of Bombay. He was Commander of the First Army Corps in France, and succeeded Sir Edmund Ironside as C.I.G.S. in May 1940

SELECTED FOR A SPECIAL APPOINTMENT AND FORMER VICE-C.I.G.S.—Lieut.-General Sir Henry R. Pownall: In France he served as Lord Gort's Chief of the General Staff; he was then appointed Inspector-General of the Home Guard, and, in May 1940, Vice-Chief of the Imperial General Staff under Sir John Dill. He is fifty-three years of age

THE NEW VICE-CHIEF OF THE IMPERIAL GENERAL STAFF—Major-General Archibald Edward Nye: The son of an N.C.O., he fought in the last war as a private, receiving his commission after fourteen months' service. He was promoted Brigadier shortly after the outbreak of the present war, and was made a Major-General last year. He is forty-five years of age, and has commanded every type of formation in the British Army, from a section to a brigade. Until his new appointment, he was Director of Staff Duties at the War Office

LIEUT.-GENERAL B. C. T. PAGET—the new C.-in-C. of the Home Forces: Son of a bishop, fifty-three years of age, formerly in command of the South-Eastern Command. He was the British Commander at Aandalsnes in Norway last year

GENERAL SIR JAMES MARSHALL-CORNWALL—the new G.O.C.-in-C., Western Command: Is fifty-four years of age, and comes from Egypt, where he held the highest military appointment

LIEUT.-GENERAL BERNARD LAW MONTGOMERY—new G.O.C.-in-C., South-Eastern Command: Is fifty-two years of age, and (like General Paget) is the son of a bishop. He comes from the command of a Special Force in south-eastern England

The Giant SUPERSTRUCTURE of a Modern MAN-OF-WAR

The Massive Midship Section of the New King George V Class

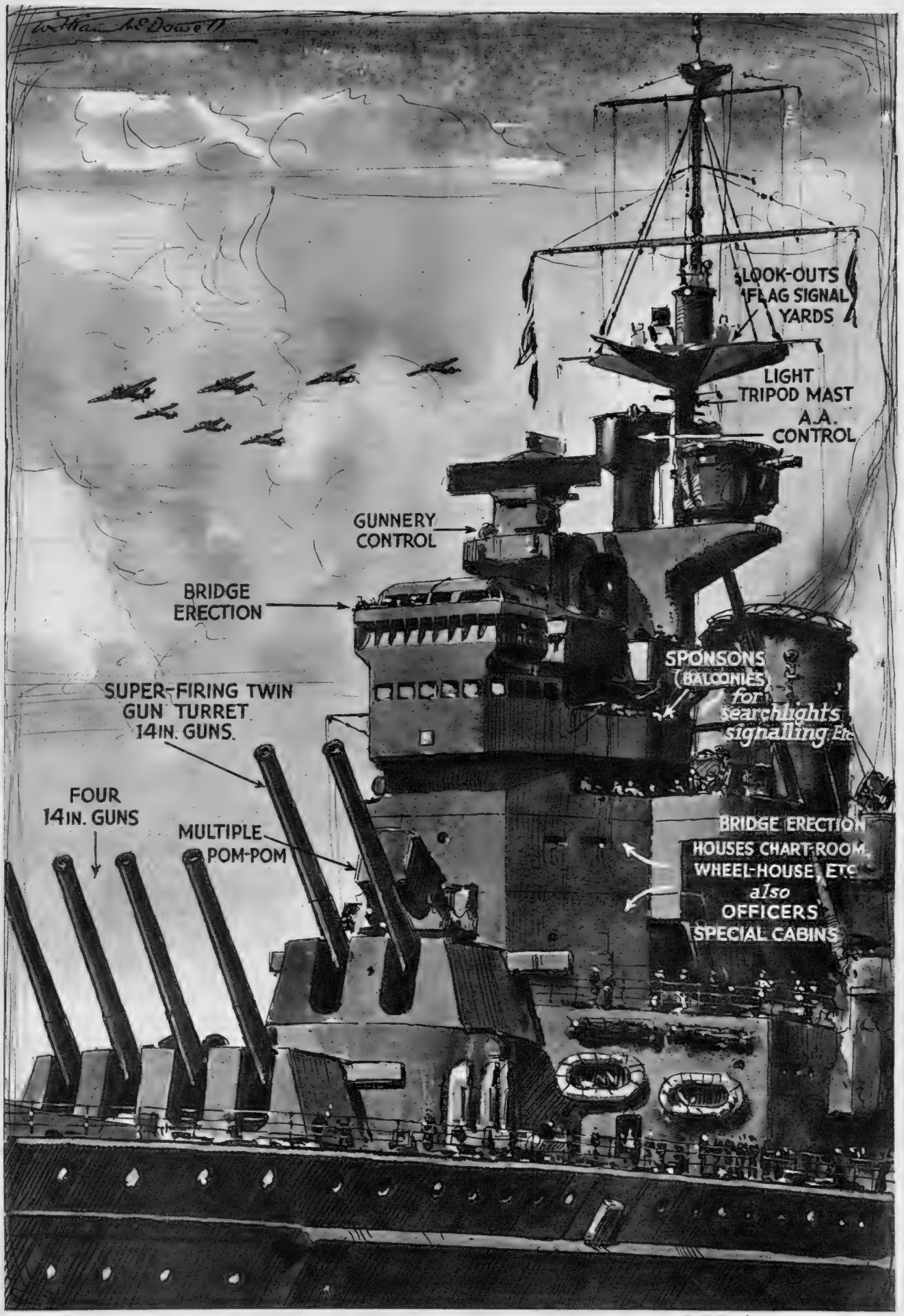
The drawing reproduced here, by Mr. McDowell, is an artist's impression of the towering mass of steel which is the modern counterpart in a battleship of the cruiser's and the destroyer's bridge. It has been prepared to show how this huge mass towers up towards the sky, culminating in the anti-aircraft control and backed up by the yards of the slender tripod mast.

The bridge structure rises immediately behind the twin-gun turret, which again rises above the four-gun turret immediately below it. On top of the two-gun turret is a battery of multiple pom-poms for anti-aircraft defence. In the lower portion of the bridge-erection are officers' cabins, occupied when the battleship is in action: the upper part contains the wheelhouse, chart room and look-out positions. Surmounting the main mass rises the gunnery control section, separated from another rising mass which bears aloft the A.-A. control tower on an anvil-shaped extension of the bridge-erection. A comparatively light tripod mast carries the look-outs and the flag signal yards.

The main structure is of splinter-proof steel; and it should be specially noted that these new battleships of the King George V class are the first capital ships since the '60's without a heavily-armed conning-tower—which are generally useless in action, anyhow!

The whole of the bridge-erection is, in reality, a modification of the "Queen Anne's Mansions" of the Nelson class. In the King George V class the sponsons, or balconies, are conspicuous: from their sides the signalling searchlights, anti-aircraft guns, etc., are operated.

It was officially stated that the design of these vessels was to include enhanced defence against air attack, including an improved distribution of deck and side armour, more elaborate subdivision, and an improved system of under-water protection. Unofficial reports gave the weight of armour as over 14,000 tons, and the water-line thickness as 16 ins.



THE FORE SUPERSTRUCTURE OF H.M.S. "PRINCE OF WALES"—
Drawing by Wm. McDowell

This huge mass of splinterproof steel towers up behind the great 14-in. guns and carries aloft the wheelhouse, chart room and fire controls. This class of battleship is the first since the '60's to be without a conning-tower (which are generally useless in action anyhow!). There are five vessels of this class destined for service with the Royal Navy—*King George V, Prince of Wales, Duke of York, Jellicoe,* and *Beatty*: all were laid down between January 1 and June 1, 1937, for completion in 1940-1941

***On left*—H.M.S. "KING GEORGE V" STEAMING THROUGH A ROUGH SEA:**

Her bows are lost in a smother of foam, but amidships is the massive superstructure which is the heart of the 35,000-ton battleship when in action. It is this section of the ship which is shown in detail in the drawing by Mr. McDowell above. These huge battleships are driven by Parsons geared turbines of a total horse-power of 152,000, which gives them a speed of over 30 knots

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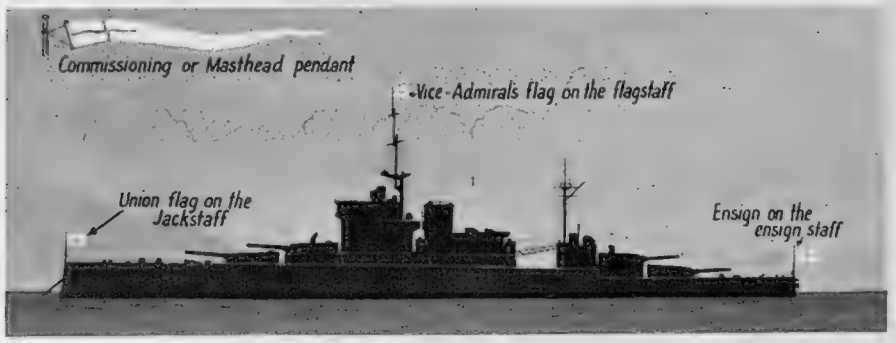


A BATTLESHIP IN HARBOUR: If a flagship (as most battleships are), the Flag Officer's flag is worn instead of the masthead pendant shown in the top left corner. Both the Union Flag and the Ensign are hauled down at sunset

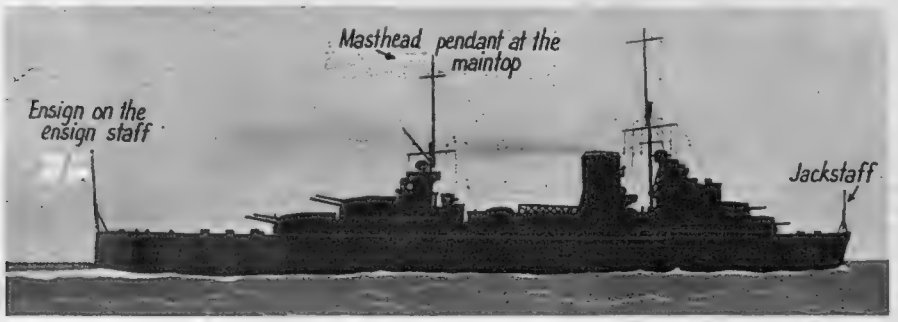
A BATTLESHIP GOING INTO ACTION: The silk Ensign is only worn on these occasions. The masthead pendant is not worn when there is a Flag Officer's flag. This is how the *King George V* was dressed to meet the *Bismarck*

THE MEANING OF A WARSHIP'S FLAGS

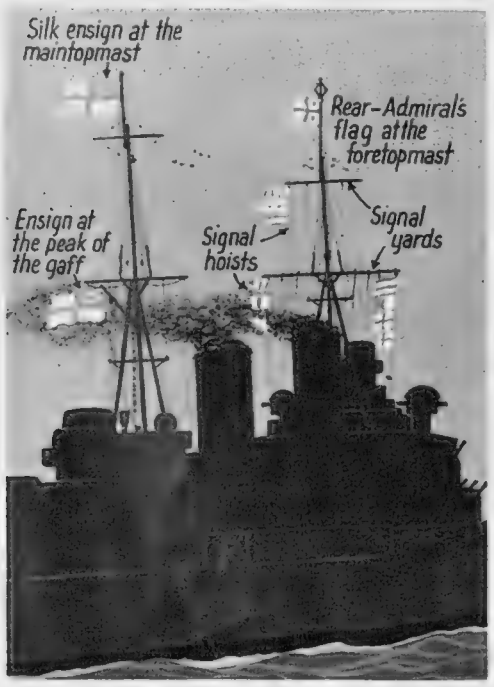
Described by FRANK C. BOWEN

FLAGS, ensigns and pendants mean an immense amount to a warship in the most serious phases of her war-work, and are not merely decorative, as many landsmen imagine; but, at the same time, their moral value is very great, both from their significance and also from the colourful etiquette, inherited through many centuries, which means nearly as much to most bluejackets as it does to the officers. There is, therefore, nothing haphazard about the Service's way of exhibiting its bunting.

Peacetime routine is very strictly laid down in the King's Regulations and Admiralty Instructions, and no divergence is allowed. At, or towards, the stern of the ship is the National Flag, the White Ensign in the case of the Navy; and on a staff right forward is the Union Flag, flown as a Jack. It never does to give it the popular name of "Union Jack" in the presence of a naval man. At the masthead is the pendant—the long, narrow flag which is supposed by legend to have originated in Blake's whip, but which is actually centuries older—in the case of a "private ship" commanded by a captain or junior officer, or the admiral's square flag or commodore's broad swallow-tailed pendant in the case of flagships and leaders. In the very unusual event of an Admiral of the Fleet going to sea, his flagship carries the Union Flag at the masthead.



A LEANDER-CLASS CRUISER AT SEA IN PEACETIME: No Union Flag is worn. The Ensign may be hauled down when out of sight of land or other ships. All his Majesty's ships wear the masthead pendant (other than flagships) whilst in commission



A SOUTHAMPTON-CLASS CRUISER GOING INTO ACTION: Orders are given out by signal hoists in code. Sometimes even as many as three Ensigns are worn

The custom of carrying the Jack forward originated in the eighteenth-century order that a Union Flag should be bent to the fore-stay of ships in action, as the dense clouds of smoke from the old muzzle-loading guns might easily obscure the Ensign aft, and cause ships to fire into their friends. The modern custom of carrying it on a jack-staff greatly improves the appearance of a ship, but it is normally only done when she is in port; ships under way only carry it when they are "dressed" with mast-head flags, generally when they are escorting British or foreign royalty and carry a complimentary ensign or standard at the mast-head. The pendants, or admiral's flags, on the other hand, are always worn as long as the ship is in commission. Normally, the Ensign is hoisted at 8 o'clock in the summer and 9 o'clock in the winter, and hauled down at sunset; but when the ship is entering or leaving port, or in contact with other British or foreign warships, or passing fortifications, she carries it whenever there is sufficient light for it to be made out. A ship in port in peacetime always wears her ensign on the staff aft, but at sea it is only there in the calmest weather. Otherwise it is hoisted to the peak of the gaff on the mainmast, as it used to be in the old days of sail, or, in single-masted ships, it is flown from a short staff erected on the after superstructure.

A CRUISER IN DRY DOCK: On such occasions no flags are worn if the vessel has been paid off; but if the crew are still attached she wears the Ensign aft and masthead pendant at the maintop. No Union Flag is worn

In peacetime, the Red Ensign, which is the special property of the Merchant Navy, is only worn by men-of-war when they are entering or leaving port, at the yard-arm, and in addition to their ordinary flags.

It is necessary to make certain adjustments in peacetime routine when the ships are cleared for action and ready for war, although they do not make unnecessary alterations. In destroyers, and other small craft especially, the jack-staff forward and the Ensign-staff aft would interfere with gunfire, particularly against attack by surface craft or submarines at close range.

WHAT THE WAR MEANS TO THE MERCHANT MARINE: TWO RAFTS, exposure in boats is bad

The work of our sailors, since the very first days of the war, has been magnificent, their sufferings often severe, and their heroism, both in face of danger and in their return to duty after losing their ship, has been wonderful. Mr. A. V. Alexander, First Lord of the Admiralty, has paid fitting tribute to these qualities of the men of the Merchant Marine. In the course of a recent speech, telling of the many cases of hardship and heroism within his own knowledge, he told the following remarkable story recounted by an apprentice after his ship had been sunk by a German submarine:

"We were struck by a torpedo in the cross-bunker hold right underneath the bridge on the port side," he said. "The ship shuddered and then commenced to

LASHED TOGETHER, AND CONTAINING SURVIVORS FROM A TORPEDOED MERCHANTMAN, ARE PICKED UP BY ANOTHER VESSEL AT SEA AFTER FIFTEEN DAYS. The enough, but on a raft the conditions are such that only the hardiest of seamen survive—*Drawing by Montague Dawson*

sink by the head very rapidly. . . . . I commenced to make my way to two other men I could see on a raft. It took me about two hours to get to the raft—it was badly damaged and had four men on it. I saw another raft, which was not damaged, and the men on it were searching among the wreckage to see if there was anyone floating in the water. This raft came over to us, and we thought it better to get the rafts together, as the raft on which I was had been badly damaged. We therefore lashed the two rafts together. We had no food at all on the rafts. We had a one-gallon tin of water on our raft. There were eighteen of us altogether on the two rafts, and we had two gallons of water between us. The weather was calm for the first four or five days, and then the sea became rather choppy. We were rationed to three teaspoonfuls of water a day. Seven men died during the time we were on the raft.

"We were eventually picked up after having been on the raft for fifteen days. We were nearly all asleep through exhaustion at the time, but someone noticed a ship close to and coming towards us. We managed to attract attention by flashing tin lids in the sun. A boat came and took us from the raft; I managed to step off the boat on to the gangway platform and then my legs gave way. When on board we were given brandy and water and every attention, then put to bed. Later on we were given beef tea and more brandy and water, and then gradually broken in to solid food. . . ."

A TRIBAL-CLASS DESTROYER GOING INTO ACTION: The destroyers at Narvik were all dressed like this

They are therefore unshipped. In action, special orders obtain, with a good deal of discretion in the hands of the captain or flag officer. The National Ensign is, of course, the most important, and at least two are always displayed in conspicuous positions, arranged where they will not interfere with the signalling, and sometimes more. A lucky shot must not be allowed to give the impression that the ship has hauled down her flag and surrendered. The silken ensigns which are presented to so many ships by the public are given the place of honour at the peak, and are only hoisted on very special occasions and in action.

The greatest care must also be taken that the Ensign is not mistaken for that of another country. In the old days, warships carried Red, White and Blue Ensigns, according to their squadrons, but while the French National Flag was

A DESTROYER OF THE LIGHTNING CLASS GOING INTO ACTION: With Ensign-staff and jack-staff stowed

plain white, the British generally fought under the Red Ensign, irrespective of the squadron. At the Heligoland Bight battle of August 1914, confusion arose between the White Ensign and the German Imperial Flag, which was very similar, so immediately afterwards ships were ordered to fly the Blue Ensign as well as the White when going into action. After a few days this was cancelled, and another order substituted the Union Flag in a conspicuous position.

In addition to their national and service flags, ships fly many signal flags in war, some for general and some for particular messages. Ships on blockade or boarding duty fly an International Code signal which has been published all over the world; ships which have been damaged hoist two black canvas balls to signify that they are not under control, like any merchantman; while a plain red flag has its usual significance that there is a danger of fire because the ship is handling ammunition, oil fuel, etc. The blue-and-white swallow-tail flag signifies that the ship is on trial, and is a warning to all other ships to keep out of her way, although it it not really necessary in wartime, for every prudent officer takes care to keep well out of the way of any warship which he may encounter steaming "all out." The church pendant shows that the crew is at Divine Service.

Drawing by E. Walker

OWING TO THE SEVERE WEATHER, HORSED TRANSPORT IS NOW BEING LARGELY EMPLOYED BEHIND THE LINES ON BOTH SIDES: A peasant's cart is used to bring up ammunition to the Russian trenches: It is undoubted that the Russians are more accustomed to the weather conditions now prevailing along the whole length of the battle-front than are the Germans. Their upbringing and training have prepared them for just such hardships. The published comments of German correspondents and soldiers have already demonstrated how resentful the enemy are of the mud and rain and snow and ice they are now encountering all along the Eastern front

IN FRONT OF MOSCOW—A transport lorry bogged in deep mud: This German lorry was on its way up to the front line, but the tortured road—called upon to carry a volume of traffic for which it was never intended—has become a quagmire. The same thing is happening all over the battle-zone: no wonder supplies are taking longer and longer to reach the front, and each successive enemy offensive takes longer and longer to mount!

THE WEATHER FACTOR in the RUSSIAN CAMPAIGN

EVER since the entry of Russia into the war, comment has been made on the weather and the effect of the Russian winter on military operations. Mr. Maisky, among others, has pointed out that "General Winter" must not be relied on too much as an ally, yet—the general weather conditions now prevailing in Russia *are* having an effect, and a big one, on the German military plans. It is well known, for instance, that the Germans depend very largely on mechanised transport, both at the front and on their supply lines: and, in every campaign hitherto, rapid advances have been made only by such means.

In Russia to-day, mud and rain and snow and ice are everywhere general. And, everywhere, the appalling conditions have brought about a slowing-down of military operations (except in the Crimea). Not only has there been a slowing-down, but acute physical misery is now being suffered by the thousands on thousands of German soldiery—so much so that it has become a matter for speculation amongst military writers whether the enemy will or will not be forced to withdraw his line from the regions of Moscow and Leningrad to areas where the troops can be better housed and better supplied!

The German Press and the military leaders have been bitter in their outbursts about the appalling conditions at the front; and these have been taken in some quarters as an apologia for the breakdown of the offensive schedule. General Napoleon was beaten by a combination of stubbornness on the part of the Russians, the shocking roads and communications of western Russia, and the weather. Apart from one or two good, modern roads, all these same conditions still prevail to-day!

A HEAVY TANK IMMOBILISED IN THE MUD: In this case, it is a Russian tank. Note how deeply it has become embedded in the glue-like mud—an easy prey, in its immobility, for the enemy's anti-tank guns

THE LINES OF COMMUNICATION SUFFER FROM THE EARLY SNOWS: For hundreds of miles the long-strung-out supply lines of the Germans stretch back to the bases. This picture was taken during the first falls of snow, and shows what slow progress the supply vehicles can make under such conditions: right back, the column is held up everywhere, with the horses struggling in mud and snow. Conditions will, of course, improve when the freeze-up comes—but then the stamina of the German soldiers will have to be considered, exposed as they will be to makeshift hutments

THE RUSSIANS HELP THE WEATHER! In addition to the weather conditions, the defenders have made things more difficult for the Germans by measures such as the above. The retreating Russians deliberately altered the course of an adjacent river, so that it now flows along the main highway. Thus, only vehicular traffic can traverse the bottleneck caused by this means: in the course of time, it is not unlikely that the roadway will be permanently injured owing to the action of the water and the never-ending vehicular traffic

THE GERMAN "BLITZ" BECOMES BOGGED DOWN: Once again, a Russian road has collapsed under the weight of military material. This picture comes from "near the Stalin line," and shows a German Army truck firmly embedded in a hole in a sandy road which proved unequal to the strain of war

WHAT "GENERAL MUD" CAN DO TO TANKS: Black, sticky turf has here enmeshed wheel nd caterpillar tracks, effectively holding up the advance. This picture was taken before the coming of the snows, which further complicated matters!

EVEN THE WELL-GROOMED OFFICERS FIND CONDITIONS DISTASTEFUL: The camp was erected on what looked a promising site, and the big tents were pitched during a lull in the advance. Then came the rain—with disastrous results for the German officers!

HOW THE GERMAN INFANTRY ADVANCE ACROSS THE SNOW-BOUND WASTES, in special fast-travelling cars containing eight men each—*Drawing by E. Walker*

The Germans have, so far, depended greatly on lorries and cars for the transport of their infantry. It is likely that the rains and snows now prevalent will check this method of transport. In the picture reproduced here we show one of the vehicles of which the enemy has hitherto made much use during the operations on the Eastern Front. It is one of the smallest of German military vehicles, and is the car standardised for the fastest transport of infantry along roads passable for vehicular traffic. Six men sit in the body of the car, three abreast on each side: another man sits alongside the driver—making a total of eight. There is a compartment with doors at the rear for the conveyance of hand-grenades and automatic rifles or tommy guns. The column of smoke in the background does not look like the explosion of a shell—in all probability it comes from a large mine, possibly a wrecking charge: it has gone high into the air before "mushrooming" out

ONE OF THE WAR'S MOST SENSATIONAL PICTURES : It comes from a German newspaper, and was, apparently, taken by chance from an aircraft flying over the scene of one of the early tank battles on the Russian front. This picture, together with other material, forms the starting-point for the remarkable reconstructions of modern tank warfare by Mr. S. W. Clatworthy reproduced in these pages. Before going on to a closer study of the two large drawings on pages 271-72, readers should first refer to the notes published below

A Representation of

PANZER WARFARE OF TO-DAY

The First Attempt by a "Sphere" Artist to Depict a Tank Battle on the Russian Front, and the Methods of Attack and Defence, with Aircraft Co-operating on Both Sides

Special Diagrams and Drawings

IN scores of official communiqués from both sides describing the fighting on the Eastern front, we have been told of the fierce battles which have taken place in such and such an area, and how mechanised assaults on certain positions have been held at great cost in tanks and guns. Many times the Germans have claimed a succession of victorious advances—"our advance units are on the road to . . ."; or "seventy tanks were captured or destroyed, together with forty-eight gun-carriers and lorries. . . ."

But nowhere has the conflict been explained with any precision which makes the process of battle clear to the reader. Glimpses of the methods of fighting have, however, emerged from the smoke-screen of the battle; and some vision of the underlying tactics—especially those of the defence—have been gained by the experts, despite the monotonous phraseology of the official communiqué.

It has now become possible to piece together the mosaic and, by a tour of the battlefield and a study of the wreckage which strews the steppes of Russia, to build up some vision of what the Behemoth clash must be like when the battle is roaring and raging, with a clang and clash as never before in the history of warfare.

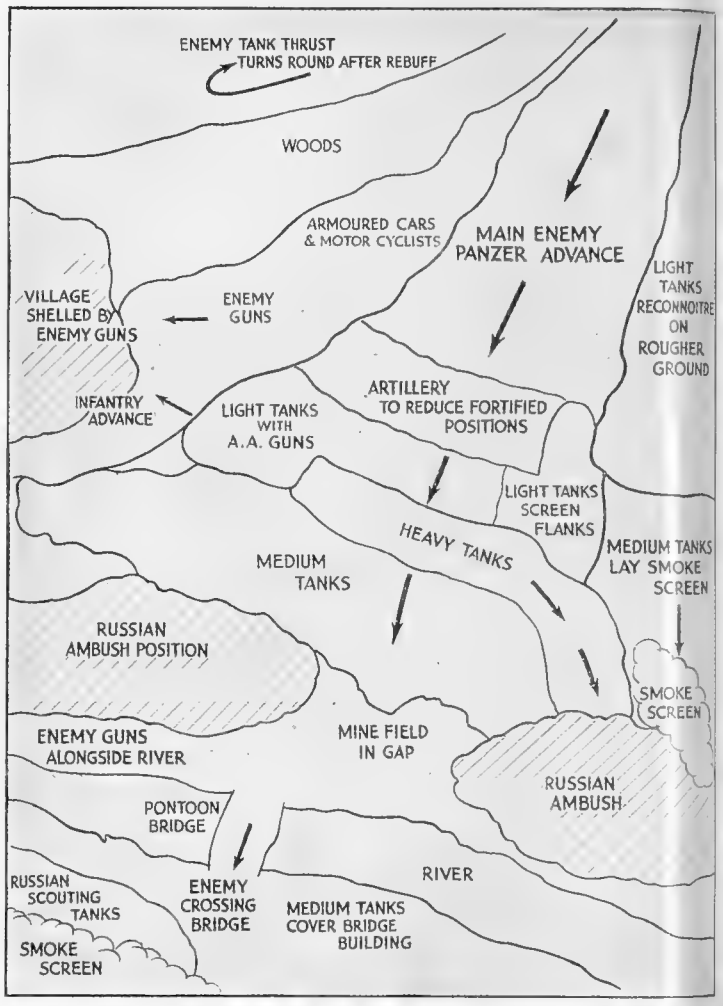
The photograph, taken from a passing plane (and reproduced at the head of this page), of the scene of a tank battle presents only apparent confusion to the eye; but it nevertheless gives to the expert an idea of the medley of armoured vehicles which must result from the fiercely-contested Panzer conflict. It has taken place on a stretch of wide prairie country, with patches of rough ground here and there. Russia, with its great plains and infrequent roads, is indeed ideal tank country. And tank warfare there, consequently, has been very different from that which took place in France.

Mr. S. W. Clatworthy, THE SPHERE's diagrammatic artist, has boldly attempted to envisage a major Panzer conflict. "I have endeavoured in the two diagrams," he writes, "to summarise conditions and procedure of a typical kind." Panzer columns, he holds, follow no set pattern. The first drawing shows the formation of a large force (all the machines depicted here, however, should be multiplied by three or four!) and the manner in which it advances and deals with minor opposition en route. The enemy Panzer division streams from the top of the picture to the bottom, encounters a river in the foreground, and is slowing up, with inevitable congestion resulting.

It is in the second picture (reproduced on page 272) that the main battle develops. The same river figures at the head of the drawing, and the roaring column of Panzers attempts to re-form and advance across it. When a desired number of the enemy units have crossed, the hidden attack is then launched.

"Incidentally, it may not always be wise to dispute too strongly the passage of a river," writes the artist. "The diagram, in fact, demonstrates how essentially fluid this new front is. In any given district it may bulge in and out without indicating any real gain or loss."

The two diagrams are dealt with in detail in these pages. One cannot resist a comparison between the modern Panzer engagement and that of the eighteenth-century Naval commanders: those conducted by Nelson started with a carefully thought-out plan, but were, as often as not, followed by an intervening period of melee! Comparison might also be made with a cavalry charge which may pierce the enemy's lines, become disintegrated and then re-formed.



A KEY PLAN TO THE DRAWING ON THE RIGHT, showing how the actions are carried out by the Panzers *(see also notes below)*

THE AFTERMATH OF MODERN BATTLE : A scene of destruction on the road to Moscow : Here are Army lorries, cars and other vehicles in a burnt-out and jumbled heap. The column had not been dive-bombed—there are no craters discernible, and wings, head-lamps and other details would not have survived the blast. Much the same applies to shell-fire. But, as most of the vehicles have been on fire (the indications in the picture are unmistakable), the column must have been cut off and immobilised for want of petrol. Almost certainly these vehicles were wrecked by their crews to prevent them falling into the enemy's hands : they also block a valuable road quite comprehensively !

PANZER WARFARE of TO-DAY—I

The Armoured Forces Advance to the River

The series of twenty-seven incidents depicted in the drawing on the right (and on the following page) are numbered in small circles. A small arrow has been affixed to each circle pointing towards the next number to be consulted.

The movement depicted in this bird's-eye diagram shows a German Panzer force, which is advancing from the top of the drawing towards the river in the foreground. The heavy tanks are streaming forward, flanked by lighter weapons to left and right. A thrust to the right has been unsuccessful, and the tanks are now returning and trying to regain the main body. Only slight enemy resistance is encountered at this stage; and this is generally brushed aside with small loss to the Panzer force. A village is defended on the left, and guns and infantry have been detailed to bypass this opposition: anti-tank guns open fire from wooded and rough ground to left and right, while masses of light and medium tanks press on towards the river. Russian planes dive-bomb selected points; they have been attacking the pontoon-bridge builders with telling results, but the bridge-building still goes on. The momentum of the Panzer advance brings it into a dangerous minefield at a point where a natural depression leads most easily to the river. A toll is taken of some of the foremost advancing tanks, and an enfilading fire causes increased local confusion. A smoke-screen, of which plentiful use is made, is laid by the Germans on the right.

The action is continued on page 272

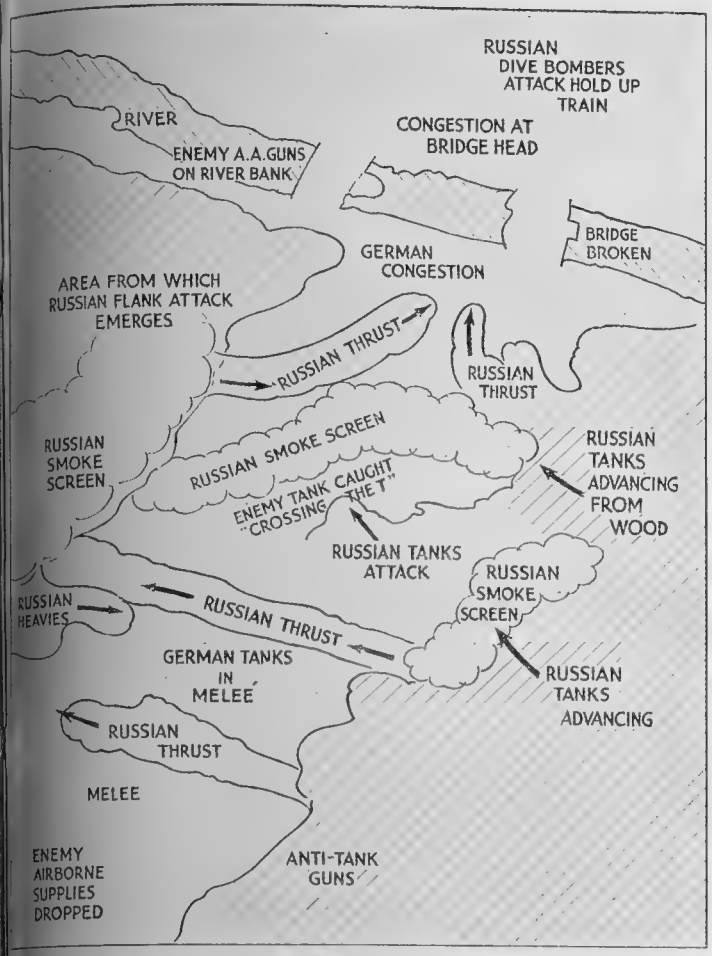
HOW A BATTLE OF THE TANKS IS FOUGHT—No. I

I.—A GREAT PANZER DRIVE IN PROGRESS ACROSS A RIVER ON THE RUSSIAN FRONT: This drawing should be studied in conjunction with the notes printed on the facing page. The action is indicated by numbers on the drawing, and is continuous from the top right-hand of the page to the bottom left-hand (Nos. 1-27). The subsequent action, after the crossing of the river by the attackers, is shown in the large drawing on the following page

Drawing by S. W. Clatworthy (artist's copyright in the U.S.A.)

HOW A BATTLE OF THE TANKS IS FOUGHT—No. II

II.—THE ENEMY TANKS HAVE NOW CROSSED THE RIVER IN FORCE: This further development of the Tank Battle follows on the situation depicted in the drawing on the previous page. It is now that the counter-attack of the defenders develops; the enemy crossing the T are caught and a melee ensues in which the German spearhead is cut off. The Russian spearhead, as well as the main body, have remained concealed until the strategic moment arrived. Artillery, too, have been concealed in the foreground, and they have now come into the action—*Drawing by S. W. Clatworthy (Artist's copyright in the U.S.A.)*



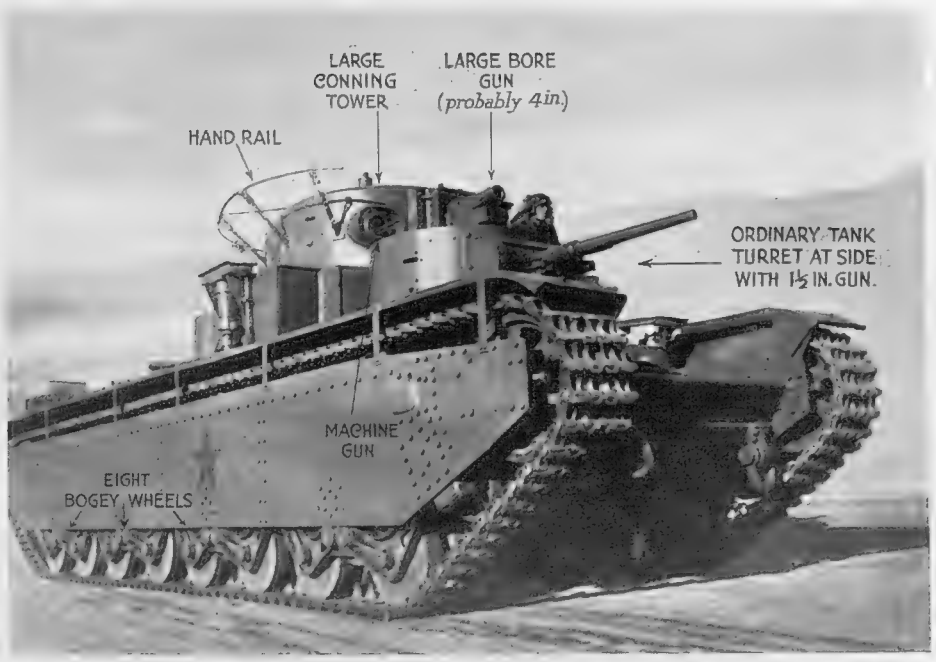
A KEY PLAN TO THE DRAWING ON THE LEFT, showing the development of the action depicted on page 271—*(See also Notes below)*

PANZER WARFARE of TO-DAY—II

The Counter-Attack is Developed

The incidents should be taken in numerical order. A small arrow has been affixed to each circle pointing towards the next number to be consulted.

The river which is seen in the foreground of Diagram 1 (on p. 271) is shown at the head of this drawing. And the action is now being continued. Increased congestion has taken place on the further bank; the attack on the pontoon bridge continues, but a large number of the enemy forces have crossed over and are advancing towards the foreground. When a sufficient number of the enemy mechanised units have occupied the open space between the flanking woods, the concealed attack is then launched. The enemy units are "crossing the T"; their broad flanks are exposed to a hot fire from the Russian gun turrets. Artillery fire supports the tanks here and there. Columns of tanks pierce the Panzer horde like cavalry charges, blazing to left and right. A concerted movement in this way will be observed coming from both sides of the arena. The Russians to the left in their turn lay a smoke-screen through which the Soviet tanks advance in massed array. Anti-tank guns are playing their part from chosen positions. The period of the melee has been reached, but the original dispositions will ultimately tell, and there can be little doubt that later an official communiqué, stating that "the head of the Panzer division was successfully cut off by defending forces," will be justified



A "BREAK-THROUGH TANK" OF THE RED ARMY: This giant is used for attacking fixed lines, and is probably the 52-tonner to which the Germans have several times referred. It is the first big tank to appear since the French 70-tonners which so scared the enemy in the early days of the fighting in Belgium and France. The tank has a lower gun turret, with a weapon of 1½ ins. in calibre and a machine-gun tucked away in one corner. The main turret is almost as big as the conning-tower of a destroyer

THE ROAD TO MOSCOW IS STREWN WITH THE WRECKAGE OF WAR: This picture of the aftermath of war on a Russian highway comes from Switzerland, and is evidently of German origin. In the foreground is a medium-sized Russian tank, armed with a gun of 1½ ins. calibre. From the damage caused, the column seems to have been caught by gunfire: it is not the result of bombing from the air

THE GERMANS "SMELL OUT" A VILLAGE—or so they claim! This tank is not the most suitable type for this work. It weighs perhaps 18 tons; its squat gun is a short-range smasher of about 2½ ins., but there is probably also a machine-gun beside it in the turret and another beside the driver. The infantry taking cover behind it carry stick-grenades and have others in their belts

GERMAN INFANTRY FOLLOWING BEHIND A TANK ATTACK: The wrecked vehicle on the right is a German motorised 8·8-in. anti-aircraft gun. The towing-tender, which carried the crew, has the back of its chassis broken—probably by Russian dive-bombing. The four-wheeled trailer on which the anti-aircraft gun was mounted has collapsed. Probably the general pall discernible in the picture is the remnant of a smoke-screen. It is significant that the infantrymen are moving in the opposite direction to that in which the truck points, and are therefore retreating!

FIGHTER AIRCRAFT, HEAVILY ARMED WITH BIG CANNON, can break up a tank attack by hitting the mobile fortresses in their most vulnerable spots during low-flying assaults
Drawing by Roland Davies

It has been demonstrated time after time that a Panzer attack, once it is launched, is extremely difficult to check: from the ground-level it is almost impossible—even for artillery—to wreck the huge fortresses bowling along at many miles per hour. The guns have only the tiniest targets, and these are moving at incredible speed, making constant changes of range necessary: and this presupposes, of course, that artillery are actually available at the point of attack! The only practicable method of counter-attack, and one which has achieved considerable success in Russia, is by means of heavily armed aircraft such as those indicated here. With their cannon-guns firing a heavy shell, low-level assaults on the advancing monsters can be, and have been, successfully undertaken. In the drawing reproduced here, no particular type of aircraft has been represented, beyond that those built for this particular task should be fast, dive-bombing monoplanes, capable of handy manœuvrability for low flying and with a good rate of climb (for safety after the attack). The cannon-guns are mounted in the nose, so that by aiming the whole aircraft at the targets the guns are automatically brought to bear. The most vulnerable spots in the tank are the tracks and the turrets—and both of these can be destroyed by the heavy shells now carried by anti-tank aircraft

HOW TO STOP THE BIG TANKS

By Arming Dive-Bombing Aircraft with Heavy Cannon which Alone can Penetrate the Thick Armour of the Panzers

ON the previous pages of this issue we have given reconstructions of a tank battle in actual progress. It is now necessary to consider the relation of aircraft to tanks in such combat.

WHAT A CANNON-GUN AND ITS SHELLS LOOK LIKE: Here are seen two of the four 20-mm. cannon-guns with which certain Hurricane fighters are now equipped. The guns protrude in pairs from each of the wings; the shells are of considerable size, and are loaded into the guns in long belts

In France, during May and June, the tank was everywhere triumphant owing to its impregnability to attack; but in Russia, our Allies have discovered a way of stopping the German mechanised columns. This is the large-bore shell-firing cannon aimed from the air. "Speed, mobility, and weight of fire are the three essentials to stop the tanks," wrote Mr. Peter Masefield, in an authoritative article in a recent issue of the *Sunday Times*. All these conditions are fulfilled in the aeroplane which carries the large-bore cannon, and—so far—in that alone.

Fighter aircraft armed only with machine guns are not enough when in action against tanks, as was shown in the Libyan campaign. Even aircraft (like the new Hurricane) armed with cannon-guns of 20 mm. are not enough, as the French discovered in their short-lived campaign in May 1940. A cannon of at least 37 mm., the equivalent of about 1½ ins., is needed. Given such cannon in sufficient numbers in suitable aeroplanes we can smash the German attack.

"Panzer Divisions will not be stopped by artillery on the ground, which usually cannot be moved fast enough to meet the tanks in their free manœuvres across country," goes on Mr. Masefield in the *Sunday Times*. "They have never been stopped yet; in Russia, they have gone forward steadily at 10 miles

***On right*—HOW BRITISH AIRCRAFT COULD BE ADAPTED TO DEAL WITH THE TANK: With two big cannon-guns in the nose, or with a cannon-gun in a power-driven turret amidships**—*Drawing by Roland Davies*

The Beaufighter is a most versatile aircraft, capable of performing many functions. Here is a suggestion for its employment as an anti-tank weapon. The larger aircraft has been equipped (by the artist) with two of the big cannon of 37 mm. which are known to be the most effective instruments against tanks: these have been placed in the fuselage below the pilot to fire through the nose of the aircraft. The smaller aeroplane depicts another type of aircraft: this is an "attack bomber" fitted with a power-operated turret of the now familiar British type, *but armed with another cannon-gun*. In this case the turret could be operated independently of the direction of the plane, so that the rear gunner can have a crack at the enemy from almost any angle!

WHEN DIVE-BOMBING A TANK, THE ANGLE OF ATTACK IS VERY IMPORTANT—*Drawing by Roland Davies*

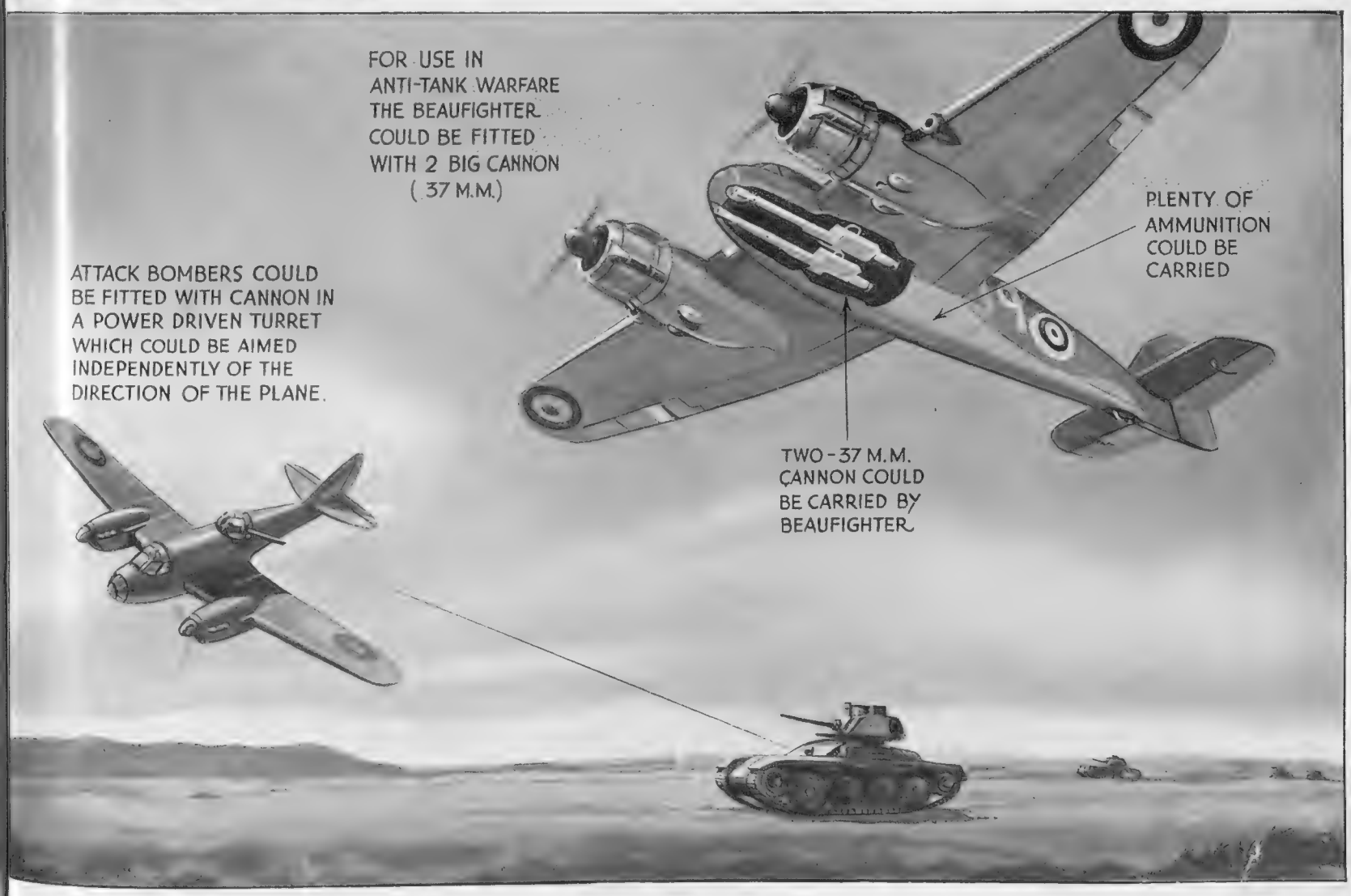
The 37-mm. cannon-gun fires a shell which weighs 1 lb.: it fires slowly, but it can pierce armour-plating of 1½ ins. in thickness, providing that the angle is not less than 22 degrees. This is a point that must be borne in mind by the pilot when making his dive: the latter must be shallow enough to achieve this purpose

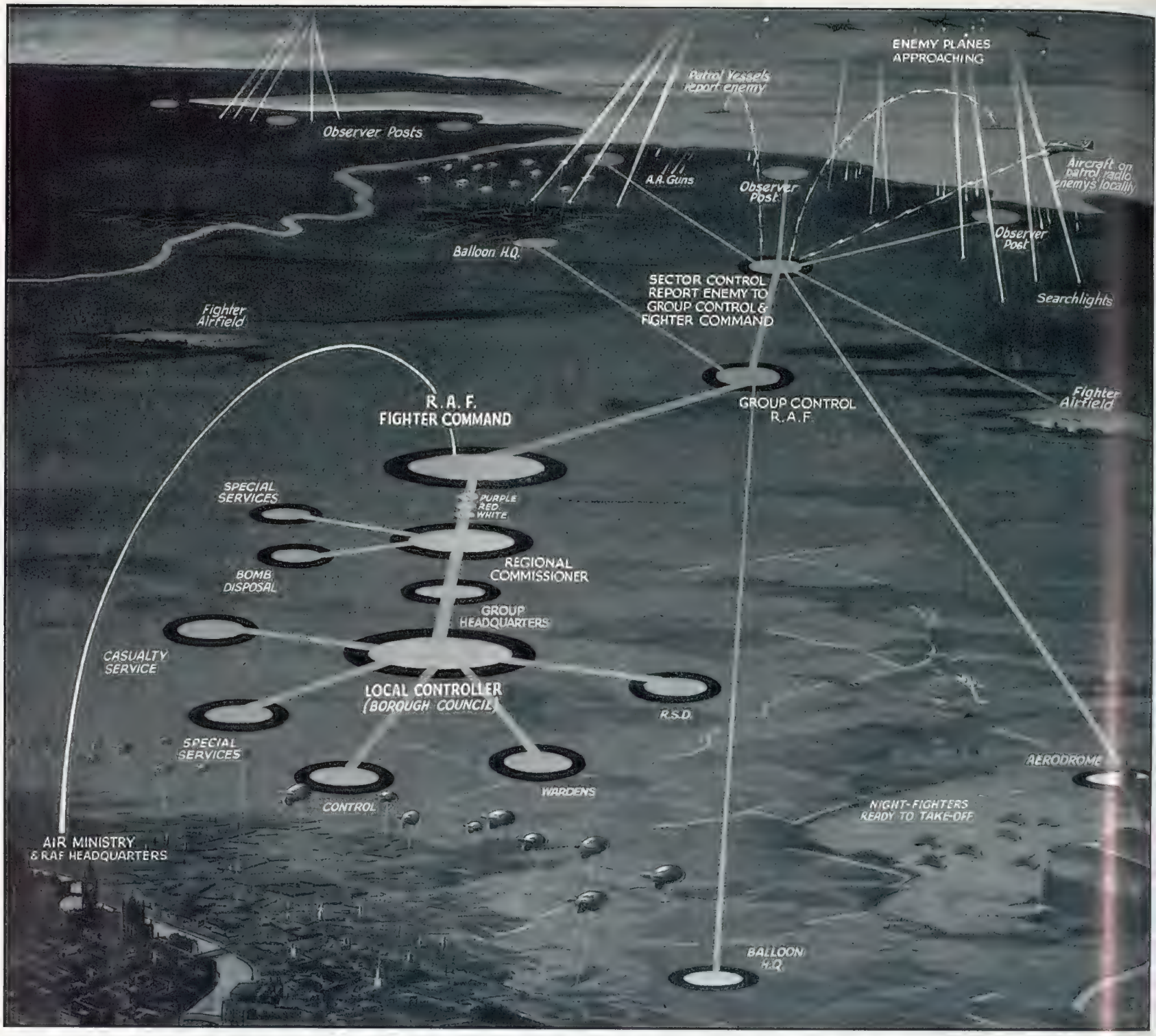
a day, despite the opposition of thousands of tanks. The enemy *can* be stopped from the air, but the campaigns in France and Russia have shown that neither bombs nor machine-guns are going to do it. Tanks are vulnerable only to high-velocity shells which are, in effect, a stream of accurately-directed armour-piercing bombs. The 37-mm. cannon fires slowly but it throws a shell which weighs 1 lb., and can pierce armour 1½ ins. thick up to an angle of 22 deg. The only way to give this form of artillery the requisite mobility is to mount the guns in aeroplanes.

"Take a standard single-seat fighter and fit cannon to it, take a two-motor fighter and add still more ammunition, or take a fast 'attack bomber' and equip it with the big cannon in a power-driven turret. Fixed cannon must be aimed in shallow dives, bringing the whole machine to bear. Movable cannon can be aimed independently."

The Bell Airacobra was designed round the 37-mm. cannon, but this aircraft has been equipped with 20-mm. cannon for use as a fighter, for which it is not ideally suited. If the Airacobra were equipped with the 37-mm. cannon with no other armament in the fuselage, and all the space were used for ammunition, it would make a deadly tank killer when protected by a fighter screen above. Similarly, the Beaufighter would take two big cannon and a large store of ammunition.

"Tank against tank is the orthodox view of how modern battles should be won," writes Mr. Masefield. "Yet that has not been Germany's way. The Germans prefer to oppose tanks to infantry and the lighter forms of mechanised vehicles. The Allies should aim at beating the tank with something as much superior to the tank as the tank was to mechanised infantry."





HOW THE WARNING OF APPROACHING ENEMY AEROPLANES GOES TO EVERY DEPARTMENT OF OUR ISLAND DEFENCES—*Drawing by E. G. Lambert*

The first warnings received by patrol ships and shore observer posts are transmitted through a network of instantaneous messages to every section of Britain's system of defence. The messages pass first to Sector Control, then to Group Control; thence to left and right go messages to fighter airfields and A.-A. guns. From Group Control, R.A.F., the balloons are warned; these give a message to Fighter Command of the R.A.F., who issue colour-signal warnings to the Regional Commissioner of the Civil Defence. On go the warnings to all special services and to Group Headquarters and the Local Controller, who, usually from the borough council's offices, issue warnings to casualty services, the wardens, the Rescue and demolition services and the other bodies. Over this Civil Defence group is seen passing a link between the Air Ministry, R.A.F. Headquarters and the Fighter Command

BEHIND THE BATTLE OF BRITAIN

The Role of the Home Civil Defence Services Described

By K. W. C. SINCLAIR-LOUTIT

"NEVER was so much owed by so many to so few." The truth of these words strikes home whenever September-October, 1940 comes up in retrospect. The few who gallantly fought off the German air fleets as they came to bomb London did so in an isolation which makes their gallantry all the more splendid. Their isolation was inevitable, but the crowded many whom they were protecting did not accept their battle passively. It does not detract one iota from the recognition which belongs properly and primarily to the R.A.F. to say that deeds of equal gallantry were performed in their hundreds in the small streets of London under the same attack which the Air Force was beating overhead. The many showed that they were worthy of the few.

At the time of Munich, A.R.P. first began to be noticed. To some, it seemed an indecent reminder of Continental goings-on which were no concern of ours. To others, it seemed a joke organisation for people who liked bossing other people around, and to a minority it was a thing to be taken seriously. That minority no longer exists—it has become the automatic majority. A.R.P., or Civil Defence, is now taken for granted as a daily precaution just as much as is an umbrella on a rainy day.

There are 2,000 miles of hostile coastline between Bordeaux and the North Cape. From any point behind this coast, maybe 40 miles, maybe 400 miles away, bomber flights can descend upon this country. The first thing the civilian knows about it is the wail of the sirens, which again we have taken for granted so as almost to assume that the Germans turn them on just before they arrive, like a polite visitor pushing the front doorbell. The siren is actually the final link in an Intelligence Service which co-ordinates information from the seas, the skies and the coastline and is, perhaps, without rival in the world.

Advance warning of approaching enemy planes comes sometimes from patrol vessels, but the first definite information is received normally through the Observer Corps. All around our coasts there are dotted observer posts where men equipped with instruments pick up the course of passing planes. From the note of an engine they can judge type, height, speed and course, and as they receive the information, it is passed back through Sector and Group Control to H.Q. Fighter Command. Sector Control radiates information to A.-A. batteries, Balloon Barrage and Fighter airfields. Sector Control also receives the wireless reports of patrolling aircraft and reports from seagoing sources. The R.A.F. is also kept informed of the movement of enemy planes by radiolocation, a device around which a whole folklore seems to have developed and which, were one to give credit in some quarters, one would

THE FIRST LINK IN THE CHAIN OF CIVIL DEFENCE: A post of the Royal Observer Corps in the wilds of England: The movements of all aircraft—hostile or friendly—are observed by posts such as these and immediately reported to Headquarters. The work is carried on in all weathers, often by men well on in years. The two men above are (on left) Percy de Beer, a stockbroker, fifty-seven years of age; and John Nash, A.R.A., well-known artist, forty-seven years of age

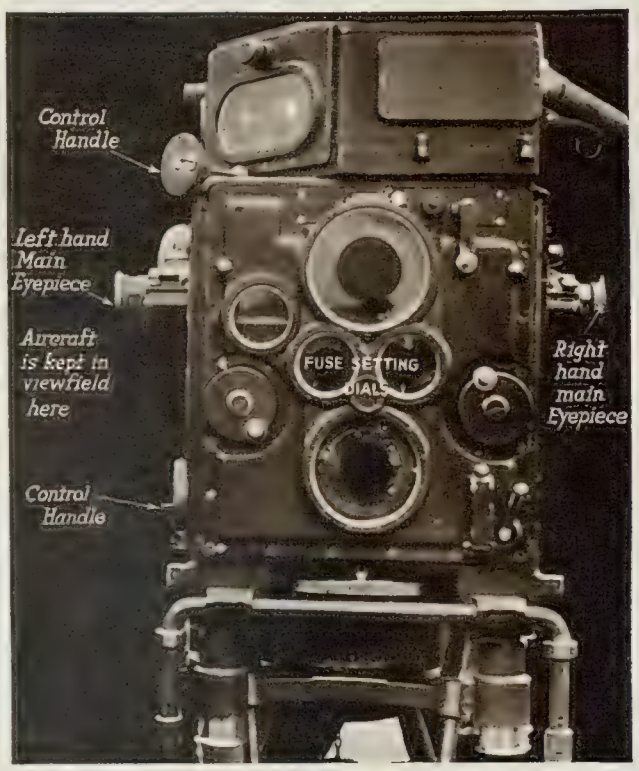
TWO A.T.S. GIRLS OF THE NORTHERN COMMAND, who have volunteered for anti-aircraft work, using an identification telescope. Note the diagrams of enemy aircraft painted on the walls of the Post

GIRLS WHO HELP TO BEAT THE NIGHT RAIDERS, operating one of the predictors which are used in conjunction with the A.-A. guns

believe to be entirely in the hands of the more glamorous W.A.A.F. When it becomes plain that a bomber force is heading for any area of the country, Civil Defence Regional Headquarters are informed by the R.A.F. and steps are taken to give warning to the area concerned.

Early in 1939 the separate Ministry of Home Security was created to expand the work of the A.R.P. Department of the Home Office, and at the same time a decentralised machinery of control was set up in twelve Civil Defence Regions into which the country was divided. Each of these Regions is equipped to deal independently with all the problems which war may bring to a community. There are representatives of the Ministry of Health, of the Fighting Services (the most obvious of whom, under raid conditions, is the Bomb Disposal Squad of the Royal Engineers) and of the various Social Welfare departments, Rehousing, Emergency Feeding, etc., all working under the leadership of a Regional Commissioner.

The Regions are broken up into Groups; that is to say, smaller areas which have as Headquarters staff a miniature of the Regional organisation. They work under a Group Controller, who is often a Senior Civil Servant or Officer of the County Council. Finally, at the end of the chain of authority, which derives its powers through the Ministry of Home Security, from Parliament and the Cabinet, there is the Local Authority. Here the general advice and directions of the Regional Headquarters are centralised on the local Controller, who is a servant of the local Borough or County Council. The local Council is thereby able, in the light of its understanding of the special needs of its own area, to provide the type of service which the needs of the neighbourhood demand. The Local Authority (which, for Civil Defence purposes, is designated a Scheme-Making Authority) administers its district along lines which have been laid down for the Government by the Regional Authority. The work comprises all the services which cope with the immediate emergencies of a raid. First of all, there is the casualty service, the first-aid parties, mobile units, ambulances, and, in many cases, hospitals which are run by the Medical Officer of Health on behalf of the Authority. The details of administering such a service and the keeping up of its supplies and the training of its personnel are no small job. Amateurism can have no place in the "blitz."



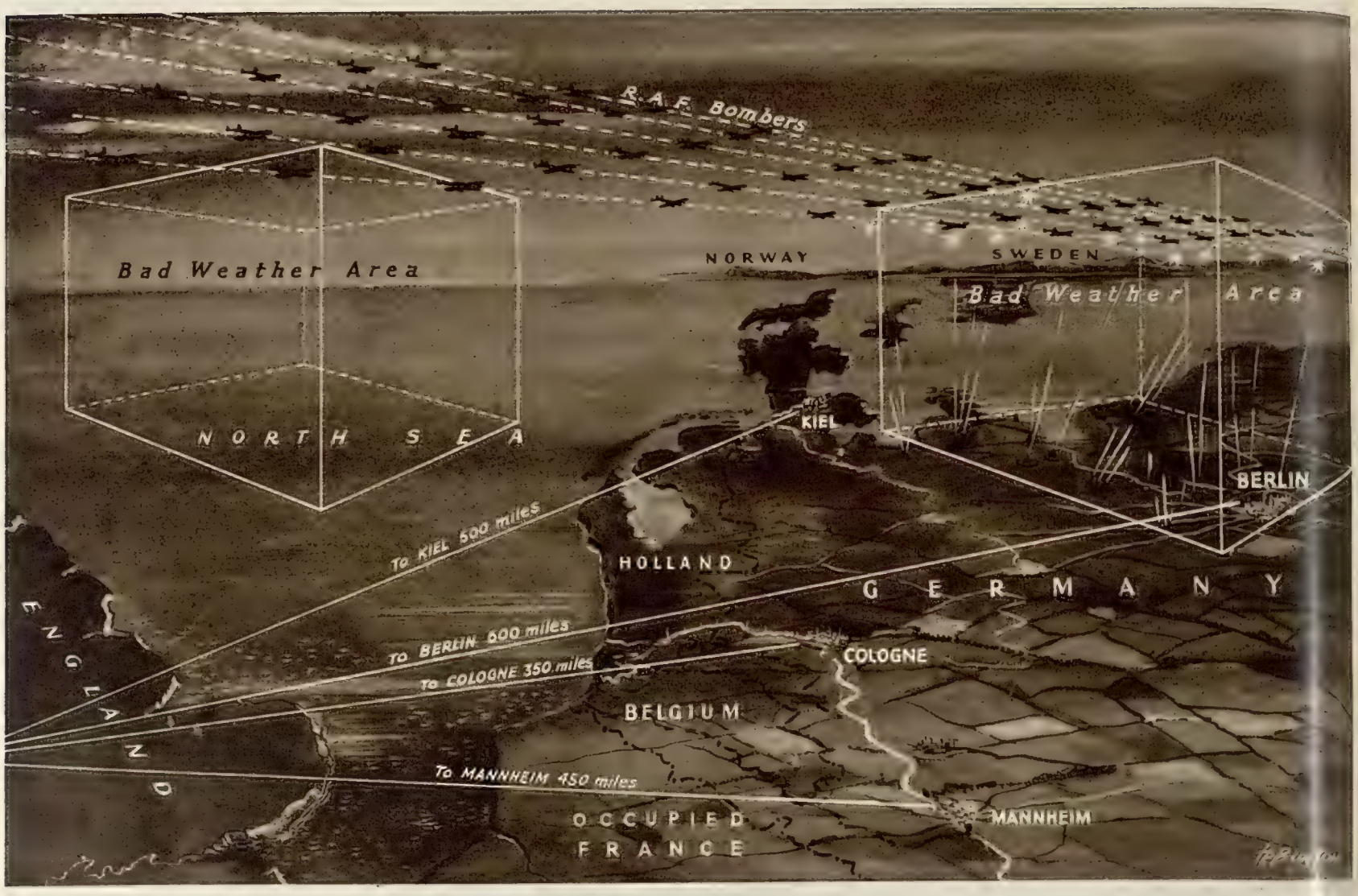
THIS IS THE PREDICTOR ITSELF, the wonderful instrument by means of which the A.-A. gunners can fire at a hostile aircraft even when it is invisible

The first warning which the Civil Defence Service of an area gets of a raid is the cautionary "Air-raid message purple." The next step is "Air-raid message red" and with it comes the wailing of the sirens. This finds the nerve-centre of the area—the Control room—fully manned, its telephones in touch with all services and with Group H.Q.

What happens when a bomb falls? Wardens report to local control the site and nature of the "incident," orders are sent out from Control dispatching first-aid parties, ambulances and rescue workers. If the "incident" is large an officer may be sent from Control to take general charge and maintain liaison. Through Control, fire brigade, extra police help, bridge-repair units, etc., can also be summoned. Thus centrally, in protected quarters, there is always available a complete picture of the night's raid. Incoming information is charted on wall-maps and tally-boards from which the situation can be learnt at a glance. Periodic reports are made to "Group," who pass special information on to "Region." A long chain links the passage of enemy bombers over the surrounding seas with the patrolling air-raid warden and the family in the shelter. The links differ; they vary from the retired Admiral and A.C.1 of the last war, now serving in the Observer Corps, to the A.T.S. girl on the radiolocator. They include the fighter pilot and the policeman who switches on the siren. The links of this chain differ in all qualities but that of strength; on it our safety to a large measure depends and the greatest tribute to its reliability is that the public takes it entirely for granted.

A MULTIPLE POM-POM READY FOR ACTION: Each gun is fed separately, receiving its ammunition (which is expended at a very rapid rate) through the two intakes indicated in the picture. The pom-pom is most effective against low-flying aircraft

THE "SPOTTER" GETS TO WORK: Lying on his back in the shelter, his job is to identify any approaching aircraft—not an easy task nowadays when there are so many different types!



THE PROBLEM OF TARGETS—Their value to us, and their price in aircraft lost

This diagram shows, in a general manner, the costly area of Northern Germany, the principal targets in which are Kiel, Cologne, Mannheim and Berlin. The two "bad-weather areas" which our bombers have to traverse to reach these objectives are also indicated in their approximate positions. To reach Berlin, the round trip is 1,200 miles; to Kiel and Mannheim the distances are 1,000 and 900 miles respectively. There is thus a considerable time for "weather" to come up, and a considerable area in which it may develop! Our recent heavy losses—37 bombers in one night—have drawn forcible attention to the whole problem of bombing by the R.A.F.

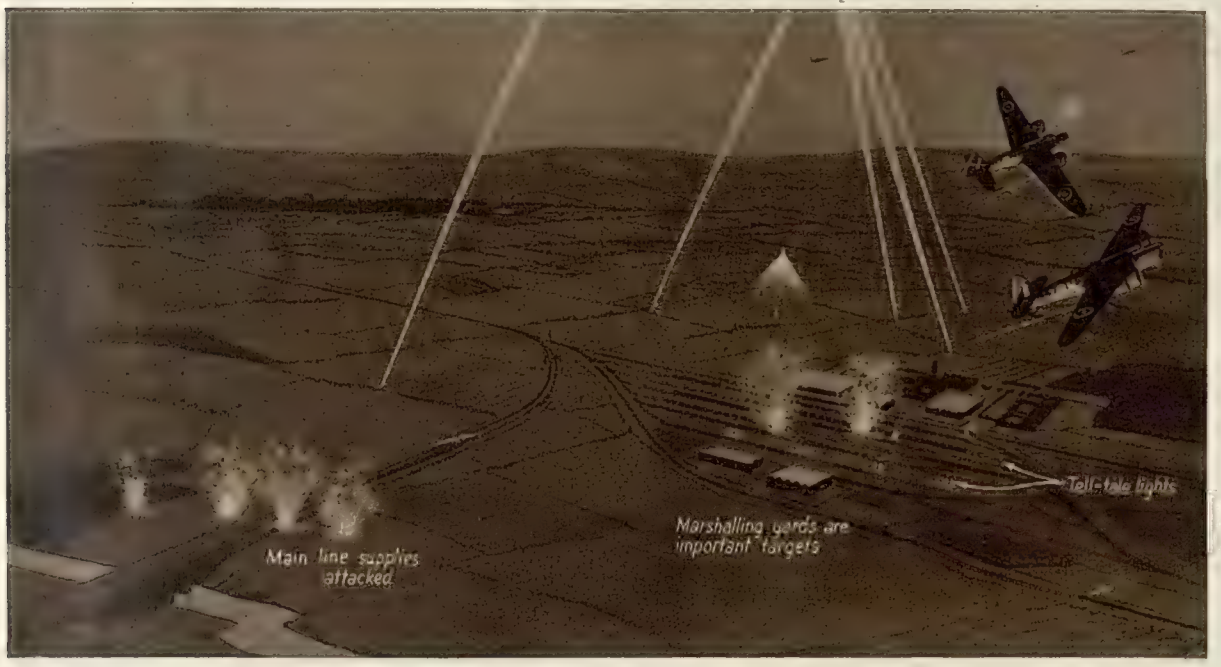
THE VALUE OF A TARGET

The Different Nature of British Bombing Raids: and their Cost in Aircraft Lost during Operational Flights

—Special Sphere Diagrams and Drawings

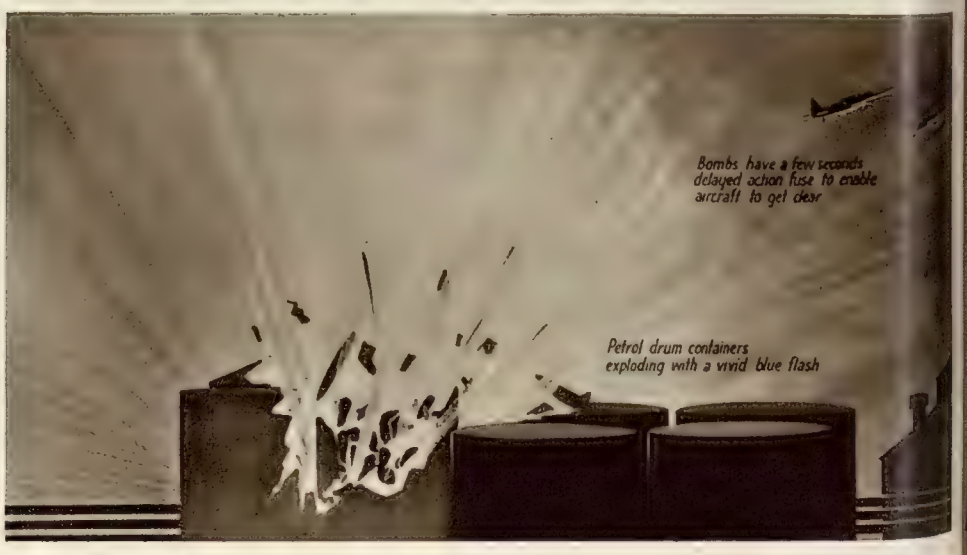
THE employment of the huge new four-engined bombers of the R.A.F. in the night-raiding of industrial Germany has rendered acute the problem of the military value of "Strategic Bombing." Losses in the earlier part of the year were small compared with the present growing casualties in aircraft and in personnel; and the recent raid on Berlin, when thirty-seven bombers were lost owing to the bad weather over Germany, has drawn attention forcibly to the growing toll which our intensive night bombing of enemy territory entails.

Expert criticism is now exercising itself greatly on this point. Reference is here specifically made to Germany, for in other areas of attack (including Italy) the losses have been comparatively slight. The new four-engined Stirlings and Halifaxes made their first round journey of 1,200 miles



THE TARGET OF THE HOUR—*Drawing by L. Ashwell Wood*

It is known that the enemy is being hard pressed to get his supplies to the Eastern Front, and the already overloaded railways of Germany therefore form very important targets for the R.A.F. at the moment, as opposed to the actual bombing of factories and industries. Taking the long view, all main lines, viaducts, bridges and marshalling yards are targets of the hour, if we wish to assist our Russian allies to the utmost. By "making a hash" of communications in the west of Germany—even in France—the railways of eastern Germany, right up to the battle-zone in Russia—are strained farther and farther . . . until, one day, there may come a crack . . . Marshalling yards are important targets, because it is here that the concentrations of engines and goods wagons occur—to say nothing of the supplies they are transporting!



***On right*—PETROL SUPPLIES AS A TARGET FOR THE R.A.F.**
Drawing by L. Ashwell Wood

Germany must be in dire need of petrol and oil supplies on her Eastern frontier. And these supplies, in transit, are the targets of the immediate moment. Although the enemy are fast getting these stores underground, there are still plenty of the drum-type containers about. These have been seen to explode after attack with a vivid blue flash; whilst others, presumably not directly hit, have been observed to catch fire and to burn for hours. When bombing such dangerous targets in low-flying attacks, the R.A.F. make use of bombs with delayed action fuses, in order that the aircraft may get clear before the explosion takes place

on September 10 with Turin as their chief objective. Raids have been made in other areas also, but the R.A.F. is usually able to announce on these occasions a safe return of the great majority of the aircraft taking part.

Major Oliver Stewart is amongst those who have drawn attention to an aspect of this question with which THE SPHERE has dealt on more than one occasion. He declares that "vast responsibilities rest upon our Air Force. Its strength must be distributed over half the world and must be used over both sea and land, whereas the German air strength can be concentrated. Consequently, for air domination there must still be a gigantic industrial effort both here and in the United States."

Therefore, following upon Mr. Churchill's recent statement of our air parity with the *Luftwaffe*, he adds: "The large size of the Royal Air Force to-day does not bring with it any reduction in the need for the closest economy in the use of men and machines. The need to scrutinise R.A.F casualty rates and to balance them against the work done, remains as urgent to-day as when the R.A.F. was much smaller than the *Luftwaffe*."

This well-informed critic has put into words what the ordinary man-in-the-street has often puzzled over. In view of the meticulous detail with which almost every operation of the R.A.F. is invested, such questionings are almost unavoidable.

What is the value of a target when viewed from the point of view of the cost of aircraft lost in a raid? Sidings in a marshalling yard may be damaged, a train and locomotive blown up, a quayside damaged, a couple of factory buildings set alight, a row of oil tanks fired. But what has been the price in bombers? What is considered a "good" night, and what a "bad" one? To raid the "invasion area" thoroughly may be worth a considerable expenditure, in so far as it tends to remove a very prime danger. But the results of more distant raids are more difficult to assess.

Mr. Peter Masefield, another expert on air matters, has stated that "only those in command can know the full implications behind our long-term bombing policy, which for want of sufficient weight in the past has been switched from oil to ports, then to communications, back to ports, and over to individual factories, as tactical rather than strategical demands made necessary. In the future our strength will be such that the bulk of it can be devoted to a steady long-term policy, while a component can be detached to deal with tactical needs as they vary from day to day."

It has been pointed out that it must be assumed that there were good reasons for cancelling the priority of enemy oil plants as targets; but the reasons have not emerged. It may be that, in the early stages of the war, there may have been some misapprehension in the Intelligence Departments as to where, and how, the main bulk of Axis oil was stored. If it were possible to issue some kind of official guidance on the matter, it would help the public in its accurate appreciation of the bombing work of the R.A.F.

A striking feature of recent strategic bomber tactics has been the growth in the numbers of bombers sent out on one night. This fact has recently been officially underlined; but it also seems obvious from passages in *Bomber Command* that all do not find their targets, though an increasing number do. A nice problem of target *v.* target is raised; it is one upon which light is sought, for the policy of steady "strategic bombing" seems to reign unchallenged in the Air High Command.

"The determining factor of this war will be the force of bombers, and to-day the initiative in the West is with the R.A.F. The way we are going to win this war is with our bomber force—the offensive—to take the war into Germany and blast enemy industry. . . ."

A TARGET OF ANOTHER SORT: German Stukas dive-bombing a Russian battleship at Kronstadt: The attack here has been carried out in daylight, and the aircraft employed are the Junkers 87 dive-bombers. During the campaign in the Eastern Baltic there were many worth-while naval targets; but, to be effective, attacks on naval vessels must be carried out in daylight. In the picture above (which, of course, comes from Germany) bombs are seen bursting around the warship in the foreground, whilst other bombs are falling near the jetties beyond

DAYLIGHT ATTACK ON A FRENCH SHIPYARD: A typical "strafe" of shipping by the side of one of the "Invasion Area" rivers of Occupied France—*Drawing by W. G. Whitaker*

Le Trait is a shipbuilding centre on the River Seine and lies to the west of the great port of Rouen in enemy-occupied France. It was recently attacked, in daylight, by aircraft of the R.A.F. Bomber Command, when bombs were seen to burst on the railway and a direct hit was scored on a ship. The need for all the vessels upon which the Germans can lay their hands was never greater than at the present moment: owing to our offensive in the North Sea, Norway, and generally along the whole of the occupied coast, their losses have been so heavy that they are experiencing the greatest difficulty in transporting supplies. Coupled with our blows at internal communications, it is likely that our air offensive will prove of the greatest help to our Russian allies on the Eastern Front, especially as the German lines of communication are now being extended so greatly

"LONDON PRIDE" AND WHAT HAPPENED TO HER 17,000 FT. ABOVE THE HEART OF BERLIN: 600 miles from home, gun turrets shot away, wings and fuselage peppered, and only one engine functioning for the journey across Germany and the North Sea!—*Drawing by Roland Davies*

BOMBERS of BERLIN

The New Avro Manchesters

LONDON PRIDE is one of the new Manchesters which took part in a recent raid on Berlin. It had jockeyed for position above its target in central Berlin—the General Post Office. Before releasing its load it was held for three or four minutes by a cone of about fifty searchlights. In the officer's own words: "We were being peppered with *flak* and had already been hit four times. Then, just as we hit the G.P.O. and were watching the colossal red flame expanding and contracting like a concertina, *up it came*! It was like the kick of a million mules. One shell tore through the radiator of my port engine (a 1,760-h.p. liquid-cooled Rolls-Royce Vulture), and away went the coolant. *Four other direct hits in quick succession carried away my rear and dorsal gun turrets, shot away the hydraulic system and put the undercarriage out of action. Although we didn't know it at the time, the rubber dinghy was also blown away.* My port fuel-tank was holed three times, but sealed up again. We had more than thirty *flak* holes in wings and fuselage."

ON THE MANCHESTER IT IS NOT POSSIBLE TO LAND ON THE BELLY with the undercarriage up: The airscrews are the world's biggest—with a diameter of 16 ft.—*Drawing by Roland Davies*

The machine was then 600 miles from home. Everything movable was torn from the bomber and thrown overboard. When hit, the Manchester dropped rapidly from 17,000 ft. to 5,000 ft.: at this height the pilot managed to stagger most of the way across the North Sea.

THE MANCHESTER HEAVY BOMBER IN THE AIR: A view which clearly shows the three gun turrets of this newest long-distance aircraft. Manchesters have already participated in raids on Berlin

The Manchester is the only one of our new heavy bombers to be fitted with twin engines, instead of the four which seem to have become general in our latest heavy, long-range aircraft. These engines are each of 1,760 h.p.: together they permit the aircraft to carry the heaviest bombs yet in service—as is only proper when it is realised that the Manchester is the biggest two-motor bomber in the world! An outstanding feature of this aircraft are the three gun turrets with which it is armed: the one in the nose has two guns, the one amidships also has a similar armament, whilst the curiously shaped turret in the tail has four guns. Details of the Manchester's performance have not yet been made public

HITLER'S ARMS DRIVE IS AGAINST US. . . .

The Greater Part of Europe is Now Subject to the Nazis; Apart from Germany itself, Hundreds of Thousands of Workers are Helping the Enemy to Forge His Weapons of War for the Final Struggle Against Britain

By FERDINAND TUOHY

THOSE engaged in war production are authoritatively told that our situation is "desperate," and they don't—they can't—believe it. They think this line of talk is another instance of the Government clumsily using the invasion bogy to stimulate production and war-mindedness, even to cover up inaction in regard to opportunities for invasion of the Continent, supposedly offered to Britain in recent times.

This is unfortunate, because if the war has taught us anything, it has been that pauses, such as the period between now and the spring (or so we are invited to contemplate matters), are turned to better account under the totalitarian system. If only France had, in the winter of 1939-40, been placarded from end to end with: "*Méfiez-vous. Hitler emploie les pauses pour mieux sauter.*" If only our national spokesmen would, two years later, try something akin, avoiding the direct expression "invasion"! Were all those upon whom we rely for war output told plainly and in detail what Hitler hopes to pile up by the spring, and how he may have the Germans suffered immense losses in fighting equipment, particularly in the air, allowing us to draw level—not the least of Russia's services—but they have no hope of seriously utilising taken-over Russian industry in time for the 1942 campaigns.

Von Papen has admitted the extent of Soviet sabotage in pursuance of the "scorched-earth" policy, the most terrible and heroic any country has ever espoused in self-preservation. According to Papen, it will take several years to get the flooded Donetz mines in working order, while industries in most places will have to be built anew.

Hitler, therefore, has to re-equip his Eastern armies—whatever he intends them to be in 1942—quite probably use some of his new-found sinews, the turn of realism thus given would do no harm.

Yet once again the tendency is to direct public attention to the glorious flow of arms and equipment about to eventuate from Anglo-American planning. Shortly after Dunkirk, we were told the same thing; yet seventeen months after *that*, this country was hitting at the most 75 per cent. of capacity war production—some put it as low as 60 per cent.—while estimates for the United States showed that one-sixth of factory effort was being directed to war output. One would think it time Hitler's opponents sang about arms potential more restrainedly. But no! Here is a leading military critic writing that "by next June, it is announced, the Soviet output of war material will have been restored to the volume ruling at the outbreak of hostilities in June this year." "It is announced"! By whom? And what an extraordinary claim to propagate when we think of the list of Soviet Coventrys and Birminghams that have passed from Russian hands.

Then there is the *Bulletin* of the U.S. Treasury, exuding optimism. "The shrinkage in [German] military production is due to exhaustion of supplies of raw materials. The exhaustion of these reserves and *the impossibility of their replenishment*," etc. The italics are mine, since one has heard so much in this key before. It might be better if we took the U.S. Treasury *Bulletin* with a whole spoonful of salt, and examined the prospect of the pick and bulk of arms and equipment which the Nazis aim to turn out this winter by "total" methods of production applied to nearly all Europe, having been ear-marked for use against Britain in one theatre or another.

This tale should really start with June last. While Hitler was moving his last units into position, hoping to cow Stalin into as good as surrender, his Dr. Funk, Minister of Economy, observed that Britain was "facing the entire armament potential of Europe." He meant Russia's too. But to Stalin's abiding credit, that did not come off, and the resultant armament position in December differs widely from that conjured up by Funk for last midsummer. Not only and, for further aggression, to challenge Britain and America to a winter arms race on the strength of what he can extract from Germans and from his conquered or satellite Continent, Russia excluded. Will he have drawn away further by the spring? Or shall we have drawn up on him? We may be better able to view such contingencies if we cast an eye over the industrial "regrouping" which the Nazis have already effected in Europe, as foundation of their New Order.

The frontiers of Greater Germany have been redrawn so as to take in the principal European industrial areas that lay outside of pre-war Germany: Luxemburg, Alsace-Lorraine, the Czech Protectorate, Silesia and Western Poland, including the great Lodz industries. All these have been annexed without shouting about it. Probably one could count in several departments of the French Ardennes, Nord and Pas-de-Calais. This prohibited zone is detached from the rest of France, and is run by the Brussels Nazis. Belgium's considerable industrial resources have likewise been roped in. So has indirect German control been established over the industries of northern Italy. To round out matters, the Germans are busily buying control of industries in the balance of France, in Yugoslavia, Hungary and Rumania.

A formidable picture results. Greater Germany (a portion of the total area sketched above) contains 43 per cent. of the industrial population of Continental Europe (not counting Russia), and can provide three-quarters of its steel output. But to all intents and purposes, Germany has got control of the whole Continent, occupied and unoccupied, neutral and satellite, thanks to having reduced exchange manipulation to a fine art. No Schacht sleight-of-hand of the past ever approached what is being done now. Hitler is drawing from all points of the compass, in one way or another—from Rio Tinto and from Ploesti, from Clermont-Ferrand and from Kiruna (which you may remember from Narvik days). The chief difficulties are: (*a*) to get an unprecedented production plan dove-tailing properly; (*b*) to secure adequate labour; and (*c*) to overcome go-slow and sabotage. Hitler is said to have over 20,000,000 workers organised in Greater Germany, together with 2,000,000 foreign workers residing there, and 1,000,000 working prisoners of war. Add to this the dozens of millions in other parts of Europe who are producing for the Nazis, if only because they must eat. Yet the Nazis want ever more workers. They have the machines, they have the raw materials. They scour far and wide for the imperative labour. Two items show how intensely the Nazis are pressing their arms drive. They are sifting their own armies on the Eastern Front in order to send back men to the factories for the winter. And they have had to get Pétain to function with a view to getting more of the 1,250,000 French prisoners of war into German factories.

Vichy has struck a new low in degradation over this. The prisoners themselves refusing in many cases to disclose their work qualifications, their families in France are being compelled to supply the wanted facts.

Hitler is determined that France, in particular, shall contribute to his war-weapons drive in a manner commensurate with the industrial status she had among the nations (and a great deal of French industry was established since the last war, meaning up-to-date plant and equipment). There used to be 8,000,000 workers in French industry, and if the Nazis will never get anything like that number working full tilt for them, by extreme cunning they have secured a half nelson on the country's potential output for war purposes. With increasing momentum, the mines, smelting furnaces, forges, heavy industry, shops and spinning and weaving mills are passing into German hands.

Three-quarters of the share capital of all Northern France industry is already Nazi-owned. In the country, generally, transport, distribution and finance are being directed primarily to serve the German war machine *now*. Factories in the unoccupied zone which don't deliver the goods are having to hand over their materials to German-controlled concerns. In the occupied regions, strikes and hold-ups are met simply by withdrawing the ration-cards of "offenders." The effect of all of which is: we cannot expect the French not to be important contributors to the winter arms drive. Other things apart, they must eat.

Darlan is doing a naval drive on the side lines. The Wiesbaden Armistice Commission is allowing him full facilities for expansion, rearmament and repair work. At Toulon, Bizerta, Mers-el-Kébir, Casablanca, Séte and La Nouvelle, new shops and barracks are being built—it is quite likely that, by hand-picking over a lengthy period, Darlan has secured sufficient recruits to fill the places of men who refused to operate their ships in the German interest, and that Darlan may attempt to bring the French Navy back to life, as part of Hitler's winter drive.

What is happening now resembles Hitler's construction of armoured divisions between the Allies' refusal to accept his Poland conquest in October, and his Oslo surprise packet in April. While we sang about the Siegfried Line and the French meditated on "*la Pause*," the Nazis were riveted to their *Panzer* Winter. I think we ought to deem it just possible that this time they may be concentrating on all forms of invasion material.

I really don't see anything extravagant in thinking that Hitler may try invasion punishment in order, as he would say, to bring us to our senses and to the green baize. And if he got into a really bad hole, I think he'd try anything—gas. Since, after all, we are committed to his own extinction.

Moreover, there would always be the chance of bringing off the long shot: just one bridgehead established, and over would follow the hordes of air-borne troops. But, returning to earth, I just would add that Hitler will seek to spur on his arms slaves all over the Continent by wielding politics. He will tell them that he wants to introduce peace, and that Britain, for her own selfish ends, etc., maintains Europe in suffering, starvation and tragedy. Recollect Sir Samuel Hoare's report that the Continent thinks the war will end in a stalemate. That is more than an opinion; it is a state of mind, and one upon which Hitler will play to some effect. Living, as they do, in misery and fear, their own countries overrun and sucked dry, what a temptation to many to acquiesce in a conqueror who says he wants only to establish a fruitful-to-all peace. And what an opportunity for Hitler to say to these people: "The more you help me with my arms drive, the sooner I can bring the British to their senses and the quicker we can make the restart."

There is also an extended opportunity for our broadcasters to occupied countries. To urge go-slow and sabotage most particularly during this winter, and with special reference to such weapons and equipment as would be needed for invasion moves against Britain, "for if Britain goes, the whole lot of you go too."

AMERICAN FIGHTERS AT RANGOON EN ROUTE FOR CHINA: Modern American aircraft are pouring into Burma, where they are being assembled in readiness to be flown to China for the reborn Chinese Air Force. American ground staff and test pilots are assisting in the assembly; and Chinese mechanics are being trained in the maintenance of the new machines. In the picture above, taken at Rangoon, are American aircraft just arrived at the docks and still in their crates. To the right can be seen some of the lorries also destined for China, under the Lease and Lend Act

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this publication should not be taken as an indication that they are necessarily available for export

A REVIEW of WARTIME BOXING and BOXERS

The Noble Profession is Still Flourishing, But all its Prominent Exponents are Now Serving with the Armed Forces. Here is a Wartime Review of Boxers, Referees, Promoters and Others in the "Fight-Game"

By CHARLES GRAVES

THE manly art of fisticuffs is wisely encouraged by the heads of the three Fighting Services. They know that aggressiveness, quick reactions, stamina, resourcefulness and fitness are prime qualifications for our fighting troops, whether they are sailors, soldiers or air crews. It was this encouragement of boxing during the World War which raised its social status from Covent Garden and Blackfriars to the Albert Hall and elsewhere. Until 1914 the fight fans were, largely speaking, either members of White's Club or bookmakers and the like. The World War changed all that. Troops discovered that boxing could be clean: it could also win them favourable attention of their officers if they put up a good show.

This war has also introduced boxing to thousands of young men who had never got nearer to the square circle than listening to a running commentary on the wireless. Inter-company, inter-battalion and inter-station boxing contests have helped to dispel the tedium of waiting for the invasion and taught the troops that absolute fitness is essential.

The vast majority of the leading boxers of the country are now in uniform. Only one, Johnnie King, is in the Navy. But I must not forget my old friend Seaman Rowles (now a petty officer in a merchantman). The R.A.F. have secured most of them. Witness: Len Harvey, Ernie Roderick, Jack London, Freddie Mills, Nel Tarleton, Dave Crowley, Kid Berg, Harry Mizler, Mickie Martin, Douglas Bygrave and Jim Berry. The Army has Arthur Danahar (Training Battalion, Irish Guards), Ginger Sadd, Frank Hough (he is overseas), Dave McCleave, Ronnie James (R.A.), Paddy Roche, Jack Hyams (a lance-jack in the R.A.S.C.), Billie Walker, and Eddie Ryan, who is in the Army Physical Training Corps. The only boxers of any repute who have failed to join the Armed Forces are Dom Lydon, Jack Doyle, Johnnie Ward (all Irishmen) and Eddie Maguire, the South African.

It was curious that the last war only produced one real Army discovery—Jack Bloomfield. In this war there is no doubt that Freddie Mills is a revelation. His name was almost entirely unknown to the boxing public on the outbreak of war. He comes from Bournemouth, a most unlikely birthplace for a professional, weighs 13 st. 1 lb. 8 ozs., is aged twenty-two and boxed in booths from the age of fourteen. On the outbreak of war he promptly volunteered for the R.A.F., and has since done everything he has been asked to do. He has beaten all the middle-weights, including Jock McAvoy, Jimmy Wilde, Tommy Martin and Tom Redington. He has also beaten Jack Hyams in the cruiser-weight class.

Freddie Mills is a very strong puncher, with wavy hair and a notable left hook. He left-hooked Tommy Martin to the chin and Jimmie Wilde to the stomach, having foxed the latter with one of Frank Moran's over-arm punches a fraction of a second earlier. He is managed by Ted Broadribb, and meets Jack London on December 8 at the Albert Hall. Only five months ago he was a middle-weight.

But how does he get leave to train for his fights? The answer is that he is entitled to fourteen days' leave a year, and he normally sets aside one or two days out of his fourteen days' leave (which is he specially allowed to take in small doses) before each fight. For his contest with Jack London he is using up seven whole days of his annual fortnight.

The very fact that they are in the Army or R.A.F. means that most of these boxers are in something better than light training all the year round. And there is no chance of their going on a binge between bouts, as they might in civilian life. Certain small privileges used to be given to them by their Commanding Officers, sensibly enough, as it was good for recruiting and the reputation of the unit in which they had enlisted. Unfortunately, several boxers tried to take advantage of the situation, and consequently the privileges have been largely withdrawn.

But who are the reigning champions at the moment? The answer is that Len Harvey is the heavy-weight champion and also the light heavy-weight champion. In fact, as far as I am concerned, he is the light heavy-weight champion of the world, not just of Great Britain. He cannot, however, be forced to defend his title while he is with the Armed Forces of the Crown. The middle-weight champion is Jock McAvoy who, on his last appearance, beat Jack Hyams at the Seymour Hall in October. The welter-weight champion is Ernie Roderick, who defended his title for the third time and won it outright when he dealt, in no uncertain fashion, with Arthur Danahar at the Albert Hall the other day. Ernie Roderick, in fact, is our only champion who can really make the weight and call himself the "King Pin." The light-weight champion is Eric Boon, who will find it very hard to do the weight when he next enters the ring to defend his title. The last time he fought at this weight was at Harringay—against Dave Crowley, who hurt his ankle.

WHAT BECOMES OF SALVAGED WASTE PAPER? "The problem of the paper shortage is almost entirely in the hands of the housewife," one expert salvager has stated. It costs thousands of pounds to separate paper from refuse, and at least 75 per cent. of paper is wasted by wrapping. Keep your paper separate, so that it can be graded at the depot instead of having to be burnt in the refuse destructor. This picture shows some of the products, vital to our war effort, which have been made from waste paper after its repulping—containers for bombs and anti-aircraft ammunition, and cartons for food products. **Save ALL your waste paper!**

The feather-weight champion is the indomitable Nel Tarleton. The bantam champion is Johnnie King, who, as I say, is in the Navy and unobtainable by any promoter. I suspect that Johnnie now scales something in the neighbourhood of 10 st. The fly-weight champion is Jack Paterson, who might find it easier to fight as a bantam when he next enters the ring.

Apart from Freddie Mills, the chief discovery of this war is Jim Welland, of Northampton, aged eighteen, and scaling 10 st. 7 lb. He has been in the Army for six weeks, and recently beat the Eastern Counties light-weight champion. Jim should go far—not that you can always tell. A number of really experienced fight fans, including Hector Macdonald, assured me that Jackie Rankin might become a world beater. Well, he didn't. Billie Walker also faded. By contrast, I hear excellent accounts of Syd Worgan. He comes from South Wales, where he works in the mines, and recently fought Jim Brady, the Empire bantam-weight champion. He lost the decision on points amid an uproar. He has also beaten Kid Tanner and Billie Walker.

We now turn to the referees. C. B. Thomas is still performing; so is Barrington Dalby, together with Wilfred Smith and Teddy Waltham, whom I have always regarded as one of the best refs. in the country, even if he is a bit hasty sometimes. Moss Deyong's countless acquaintances will be interested to know that Mossy is doing munition work and cannot get the time off to give any of his controversial decisions. Mickie Fox is in the Army Physical Training Corps, and recently had his first job of refereeing since he joined up, in the clash between George Odwell and Kid Berg, which George Odwell, making his come-back, clearly won.

We now come to perhaps the most important side of the game—the promoters. The first to start the ball rolling, apart from charity shows, was Jimmie Wicks, who put on the fight between Eric Boon and Kid Berg at the Cambridge Theatre in February of this year, ringside seats being £1 apiece. This fight made money, but not much. Jimmie Wicks ran two more shows which were not so successful.

John Muldoon then appearedon the London scene. He is an Irishman, good-looking, with jet-black, almost semi-circular eyebrows. He was shadow boxing at the Gymnasium in Fitzroy Street when old Dan Sullivan paid a visit to see his Johnnie Ward training. Dan knew that Muldoon had tried to fix a fight between Jack Doyle and Tommy Farr (the latter left the R.A.F. because he was unfit for air crew), so naturally Old Man Sullivan was interested to meet him, and reminded John that in the World War he had run shows at the Ring, Blackfriars, year in and year out, from 1914 to 1918. Old stagers will recall his fights on Sunday, Monday, Thursday and Saturday. During the war period, the National Sporting Club and Peggy Bettinson ran fights during the winter season. Jack Callaghan, at the Hoxton Baths, and Victor Berliner, at Premierland, also kept the game going seasonally.

John Muldoon was much interested in Dan's suggestion that he should wear the mantle of Air Commodore Critchley and Arthur Elvin, but pointed out that he had not sufficient backing. Backers were secured, with the result that on June 12 John Muldoon staged the Roderick-Berg fight at the Albert Hall with an all-star bill, including Lazar and Crowley, Tom Smith and Johnnie Ward, Eddie Maguire and Dave McCleave. It was a full house, and boxing's first real financial success of the war. The ringside seats were £2 apiece.

A month later Muldoon arranged the Danahar-Berg fight at Clapton Stadium. It was in the open air. Ringside seats once again cost £2 each, and if Muldoon could have kept what he turned away, he would have filled the Albert Hall. This was also a financial success, with an attendance of 14,000. On August 28 he promoted a series of fights at the Albert Hall between Lazar and James, Tarleton and Walker, McCleave and Hyams. This also proved to be a good money proposition. On September 29 he achieved his real ambition—he staged a championship fight. This was the Roderick-Danahar affair. Ringside seats cost £10 each and all the profits went to the R.A.F. Benevolent Fund, except for the 5 per cent. of the £6,000 gate which the British Boxing Board of Control insisted on taking, despite the unpopularity incurred. Freddie Mills appeared on this bill, when he stopped Tommy Martin sensationally. Muldoon was particularly pleased with the result, because he is an aircraftman in the Royal Air Force.

On November 3 his bill included Roderick v. Mizler and Mills v. Wilde. His next promotion (Albert Hall, December 8) is Freddie Mills against Jack London, over ten 3-minute rounds. So much for Muldoon.

In the provinces we have Syd Hulls promoting at Leicester, mostly charity shows. Up at Liverpool Johnnie Best has kept the flag flying throughout the war, and has first call on all the Northern Champions headed by Ernie Roderick and Nel Tarleton. At Northampton Con Wilson is doing well. It was Con who arranged the Danahar v. Snow fight—the winner to meet Roderick. He also promoted the Roderick v. Snow contest. Both made good money, and in the case of the Danahar v. Snow fight, the guarantees for both boxers were doubled (Con Wilson had bid £650 for the fight to Johnnie Best's £600).

At Newcastle Fred Charlton runs a fortnightly club bill. At Dunstable our old friend Sam Russell is promoting small-time programmes, mostly for the troops. Poor John Mortimer is dead, and no one seems to have taken his place to give the matelots a show in the neighbourhood of Portsmouth and Southampton.

The latest boxing promoter is L. H. Bernie, who is running a regular Sunday afternoon programme at the Alexandra Palace at Stoke Newington, prices being from 2s. to 10s. His object is to bring new faces into London—Northern boys previously unknown in the South; a kind of junior Albert Hall, in fact.

That is a rough picture of wartime boxing. If you would like a statistic, Roderick received £1,250 and Danahar £750 for their recent fight at the Albert Hall.

P.S.—Charlie Smith (of Deptford) is doing munition work at Slough, and Eddie Phillips is no longer in uniform and is unlikely ever to fight again.

PICTURES from the HOME FRONT

THE SOUTHERN RAILWAY'S WORKSHOPS SMASH RECORDS TO AID RUSSIA : Mrs. Dolly Strover is a riveter in the workshops of the Southern Railway ; she is here seen at work, with men colleagues, on goods wagons destined for Russia. One thousand of these are now on their way, as the culmination of weeks of prodigious effort on the part of the men and women engaged on their construction. One hundred and thirty men, nineteen boys, and twenty-two women were employed on this special task ; and in continual shifts they each worked sixty-seven hours a week to accomplish in ten weeks what would normally have taken twelve months

A YEAR'S WORK COMPLETED IN TEN WEEKS BY THE SOUTHERN RAILWAY : Truck underframes leaving the Southern Railway's works for Russia

THE CENTRE OF THE CITY OF COVENTRY AS IT APPEARS TO-DAY : Just over a year ago, Coventry was the target of a savage and concentrated bombing attack by the *Luftwaffe*, and a large part of the centre of the city was laid waste. To-day, much of this area has been cleared of debris : in the foreground of this picture is the site of the Market Hall, with the Clock Tower alone remaining. The spires in the background are those of Trinity Church and the Cathedral

" FREE MINERS " OF THE FOREST OF DEAN : As a result of the demand for coal, many of the " Free Miner " workings are again in use in the Forest of Dean. A Free Miner is one who has the right to mine for coal. Situated among the trees and bracken, the small mines of this region present a very different appearance to those of the better-known coal-mining areas. This picture was taken at a mine 100 years old, which has just been reopened by a party of four men : the trucks are hauled for long distances to the road, through the trees and bracken, by a cable attached to a steam winding-engine

BRITISH AIRMEN AFTER THEIR RESCUE BY A DESTROYER : The crew of a British bomber of the R.A.F. photographed on the keel boat as they were brought ashore a few days ago. They had been picked up by a destroyer after their plane had been forced down over the North Sea

OTHER THINGS THAN WAR...

Calls From, and To, the Past; Some Famous Couples and Some Clergymen Correspondents

THE CALL FROM THE PAST.—I had a letter the other day from a lady whose surname seemed familiar. She had been reading a book of mine recently published. My name, it appears, sounded familiar in her ears. She wrote to ask if I were her dead brother's friend of that name. She had been looking up their old visitors' book, and found that I (if indeed it was I) had last stayed with them in 1908.

It was a long time ago; and, while I clearly remembered vivid details of her brother, who was a friend of Oxford days, I had no recollection at all of staying in their house. On the other hand, I could go over in exact detail half-a-dozen early pioneering motor-tours which I made with him. He was well off, and was always buying the latest model of the "horseless carriage." He had a lesser passion for English cathedrals, and, with many breakdowns by the roadside, and jerky re-starts, we visited at least a dozen cathedral cities together, putting up at the local inns and usually drawing a crowd of urchins to observe our start-off for the day's tour.

Why I should totally forget my friend's house and my visit to his family, I cannot tell. It is a trick of memory, that tricksy spirit, to create these gaps and black-outs. My friend was a man of enormous physical and moral strength. He would playfully throw me about and, as playfully and dangerously, throw the sofas about. His humour was very keen, and took the form of frankness to the point of uncensored rudeness. I appreciated his sense of humour and enjoyed his verbal brutality far more than his physical violence (I never saw the point of horseplay). Accordingly, we used to adorn our jolly holiday tours with the exchange of ceaseless abuse and personal insults, and I never remember that a tinge of malice or ill-temper spoilt our excursions into Billingsgate and the cathedral closes.

Indeed, I remember with pleasure everything, vital and trivial, about his appearance, manners and character, and nothing whatever about his home. Yet I doubt not that when I stayed with him in 1908, I made every effort to impress myself on his family, and I dare say I went away in the belief that I had done so successfully. In the thirty-five years which have passed since then, I have written many books, a dozen or more, and I believe a list of some of them figures at the head of this latest book.

The humblest author, when his catalogue of publications reaches double figures, assumes that, in a small way and to a limited public, he is impressing his name as an author on his acquaintances. He cannot believe that so much labour can have so little result; that, after a constant stream of literary publications over thirty years, his acquaintances should still ask him the question: "What is your profession? Do you write books?" Yet it is not a rare experience among authors who do not write "best-selling" novels, or who shrink from the publicity of literary luncheons. Indeed, still to-day the sober walks of Literature are very unfrequented by-paths, and you will find that the Trevelyans and Omans and such sober, efficient craftsmen in history and biography are strangely unfamiliar to the reading public which knows the most intimate details of the private lives of the Oppenheims and the Christies, and the novelists and journalists who depict the politics and social tragedies of war and 'tween-wars Europe.

Which is illuminating of the mentality of civilisation's reading public, and of the uses of advertisement, and is, besides, a sound corrective to the pride and vanity of a class of writer who least displays those vices. That class I myself follow afar off; and this lady's letter corrects any vanity I may perhaps indulge. She remembers me vaguely as her brother's young friend—perhaps rather a flabby portrait. But those decades of endeavour which followed—all that ocean of ink—afforded no lines of communication, bridged no gap. That ocean of ink was a "salt, estranging sea."

Madam, I *am* the author of that book. Madam, to be more relevant, I *am* your brother's flabby young Oxford friend. Such as *he* was, I am perhaps prouder of the latter claim to fame. Yet I am glad that you should bridge the gap and admit the other claim also. I stand corrected at your hands. And at least, your memory, if not faultless, was better than mine.

Call Back the Past!—At the first premature and bitter hint of the rigours of the third war winter (it is, in fact, the seventh), some of us were gathered round a wood fire in an unheated house, and the talk was of the luxurious, easy days of long ago in our hot youth. And one propounded the question: What spiritual or material comfort of those days would you conjure back to-night, if you had a magician's wand? Some said one thing, some another; and when my turn came, I was ready with an answer which at least satisfied me.

It was a double-barrelled shot. It hit the material and spiritual bull's-eyes alike. I would call back that sense of unutterable comfort, security and peace which came at the end of last century to one who lay in bed in an English country house—his own home or the home of dear relations or tried friends—in winter; lay in a large old-fashioned bed in an old room, shuttered and heavily curtained, watching the flames of a hot coal-fire flickering on his bed-post. Behind and before him in memory and anticipation were carefree days of holiday, and covert shoots among well-known woods where every stand held a pleasant memory.

Immediately before him lay the pleasure of reading in breathless interest the latest adventure of Sherlock Holmes, and, after that, eight hours of dreamless sleep and then, on awakening, his morning tea, his brown hip-bath, and brown cans of water, hot and cold, laid before the fire which, if the weather were really seasonable, would be deftly relaid and relighted. Peace, snug comfort, security—were we not in splendid isolation with no suspected enemy on the immediate horizon?

AN OLD THAMES LANDMARK DISAPPEARS: The three-masted barque *Seven Seas*, for many years a familiar sight at her moorings in the Thames at Charing Cross pier, has now been towed down the river to be broken up. She was launched in 1876; and during recent years was the headquarters of the "Seven Seas Club," founded for Royal Navy and Marine Officers "to foster the comradeship of the sea"

Snug, smug, monstrous luxury, monstrous misuse of man-power and woman-power, monstrous, criminal age of Privilege! I dare say. I don't deny it. Mad and bad that age was. But, ah! how sweet it was that evening in November 1941.

Some Famous Couples.—A correspondent wrote to me for information as to the "origin" of "Darby and Joan." "As you know everything," she kindly added. I told her I had last week confused Pilate with Judas in the temporary mental aberration induced by war, and therefore must reject the claim to omniscience. Then I reached down my *Brewer's Handbook* and looked up Darby and his Joan. And my eye lit upon the origins of several other famous, real or legendary, pairs of friends and lovers. I found myself very ignorant of their origins. Perhaps you may admit a similar ignorance.

Darby and Joan.—Darby, it seems, was a London printer who died in 1730. Joan was his wife. They were a loving couple who hated change, and were celebrated in a crude ballad printed by one of Darby's apprentices (one Woodfall) in the *Gentleman's Magazine* of March 1735. Forty years later (when Goldsmith wrote *She Stoops to Conquer*), Darby and Joan had become legendary. This, of course, is an example of "Jenkins' ear," or chance immortality.

Daphnis and Chloe.—Fictitious pastoral lovers invented by a Byzantine Greek, Longos. St. Pierre may perhaps have copied his Paul and Virginia from these pastoral lovers.

Damon and Pythias.—Damon was a Senator of Syracuse. Pythias (or Phintias), his friend, went bail for his life when Dionysius condemned Damon to death. Each performed a supreme duty of friendship for the other, and their story "ended happily."

Dante and Beatrice.—It is uncertain whether Beatrice was a symbol or a flesh-and-blood character. Dante married another lady, Gemma of the Donati.

You note I have only skimmed one letter of the alphabet in the catalogue of famous friends and lovers of fact and fiction—the letter "D." There are other Damons; there are David and Jonathan; Dinias and Dercyllis, Dick and Harry (not to mention Tom), Dodson and Fogg, and the Dunmow Flitch. Beyond these, there are a score or more of initial letters unskimmed. Clearly, love and friendship have bulked large in human affairs and in literature since Adam and Eve and Cadmus came down to the river to bathe.

To Clergymen Correspondents.—I was a true prophet when I forecast that, if I ventured once more into the field of religious subjects, I should have a hornets' nest of protests from clergymen.

I was a true prophet concerning the amount of correspondence which I received after my references to the vexed questions of the Oxford Group and of Anglo-Catholic Eucharist versus Matins. But, happily, I was a false prophet in my use of the words "hornets' nest." "They came upon me like bees," but with sweetness, not with sting; and I stand corrected, pleased, if surprised, by a new moderation in the tone of the protests of my clergymen correspondents.

One sent me a quite admirably clear historical review of Sunday Church Services as comprised in the Anglican Liturgy, a review which, starting from the Apostles' writings and teaching, took note of the intentions and interpretations of Cranmer and the Anglican Reformers, of the failure of their avowed aims through the laxity of the people over centuries, and of the new effort made in recent years by the Anglo-Catholics to restore Sunday public worship to what it was intended to be by the founders of our Liturgy. My correspondent, now a Chaplain at an R.A.F. station, has produced a notable document, which I would willingly lend to anyone interested who (with time and typewriter to spare) would return me a copy.

Other letters, too, were restrained, constructive and helpful on a little-understood and controversial subject as on the (far less important) subject of the Oxford Group evangelists in war. I should like to thank my correspondents in bulk, and to assure them that this new and welcome restraint cut more ice with me in a week than did twenty years' application of red-hot knives heated in flames. How terribly true are the old nursery maxims and moral saws. There would be no international problems, no political warfare, nothing but peace on earth in every walk of life, if men guided their lives by half-a-dozen nursery saws. There would be no work for generals, diplomats, lawyers, or . . . But you can complete the list as you think proper.

J. G.

THE SHAFTESBURY HOMES AND "ARETHUSA" TRAINING SHIP

This Society is always pleased when news comes of an Old *Arethusa* boy having been promoted to Warrant rank. Sometimes this achievement is reached very quickly, but at others, only by years of patient plodding. So it is that one such Old Boy has just applied for the Committee's award of a sword, after patient climbing from 1911 until 1941. But—*he got there!* It costs at present £90 to train a boy for the Royal Navy, but how worth while when, sooner or later, that boy reports "something accomplished, something done"! Funds are constantly in need of replenishment. Please send a gift if you are able, and address it to: 164, Shaftesbury Avenue, London, W.C.2.

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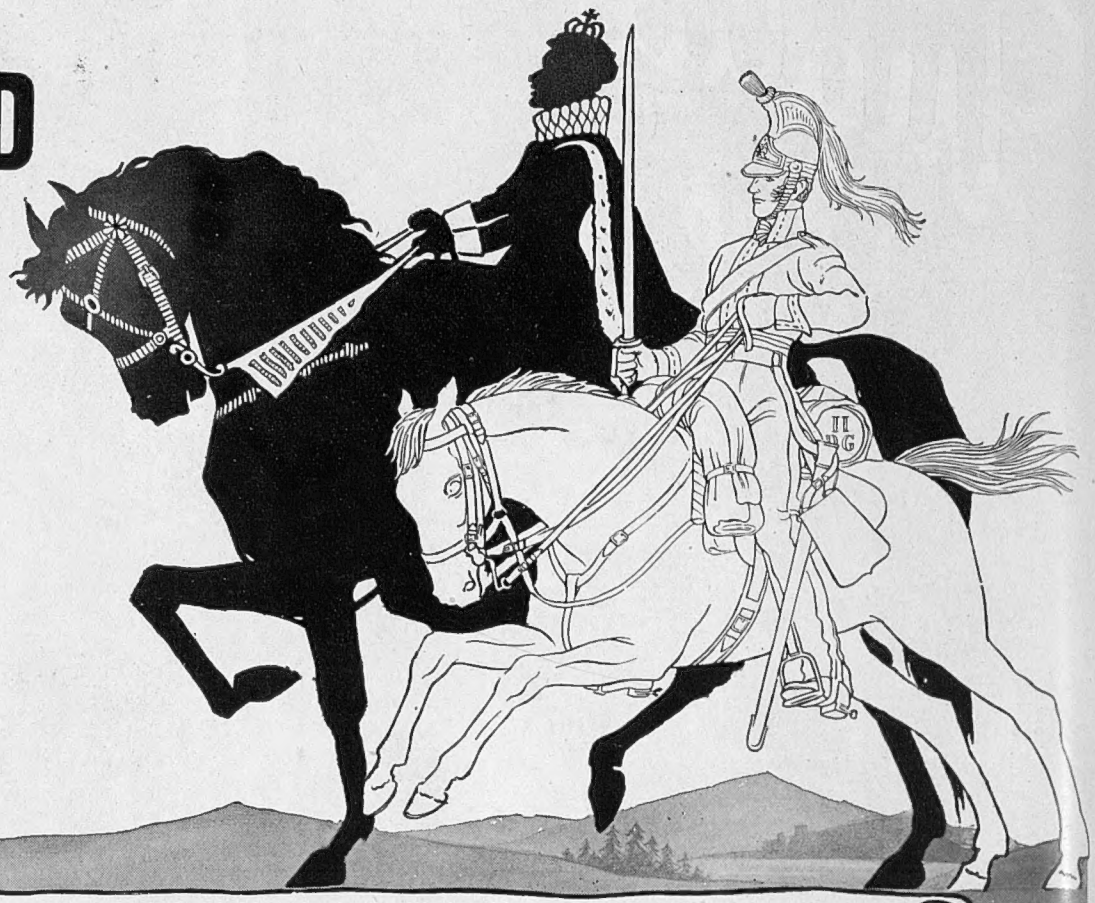

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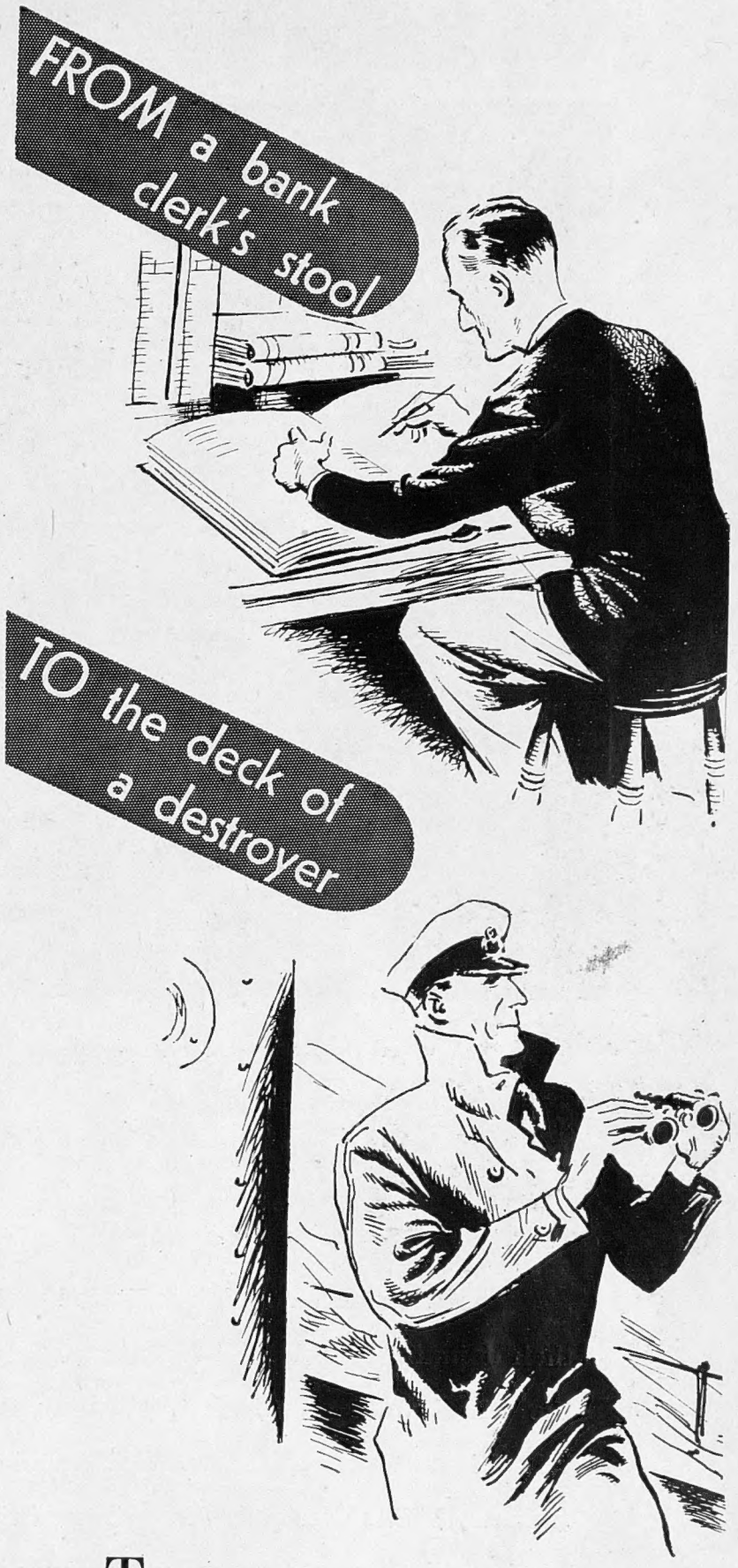

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